# Journal
## OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION





***Contents continued on adv. pages 2 and 4***



**Vol. 131** **October 15, 1957** **No. 8**

# *Ergonovine Maleate*

Intramuscular injection of Ergonovine Maleate greatly facilitates post-parturient procedures by controlling hemorrhage and producing a firm contraction of the uterus in 10 to 15 minutes. Especially helpful for everted uteri, Ergonovine Maleate shrinks the uterus, increases its tone, and affords easy replacement. Ergonovine Maleate is also recommended following cesarotomies as an aid to easy and satisfactory suturing. Ergonovine Maleate does not upset endocrine action. Supplied in 15 cc. vials.

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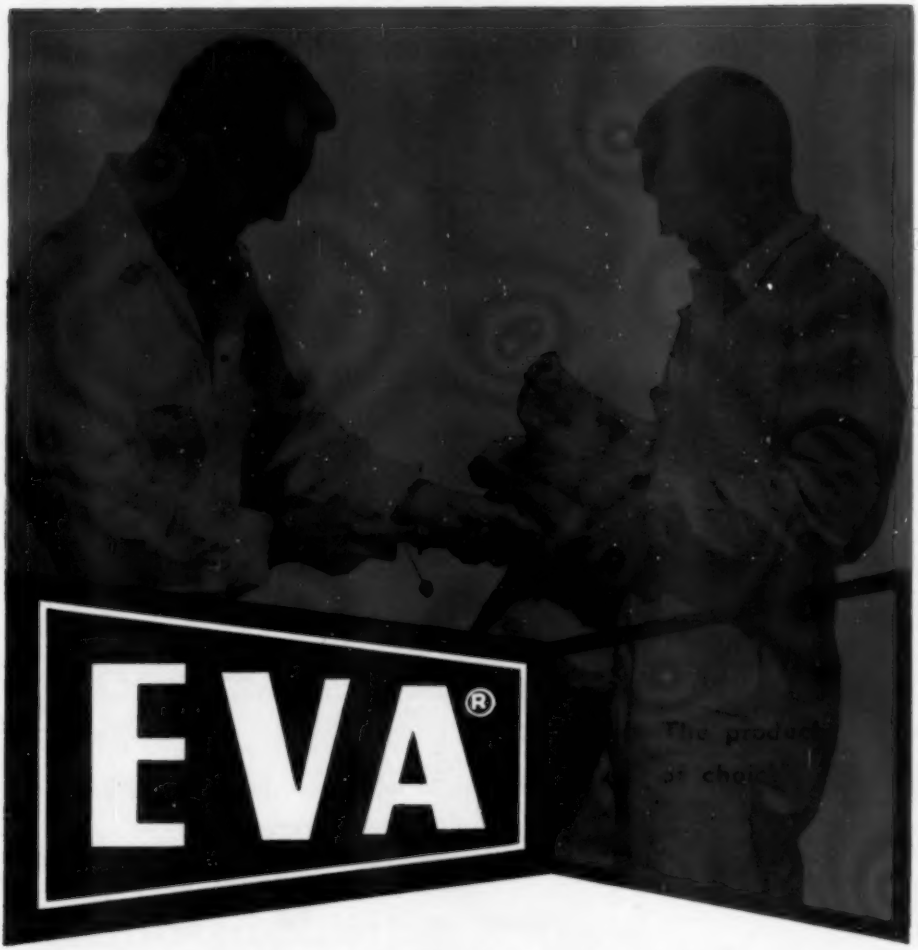


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Live culture EVA produces rapid, high antigenic response for long, strong immunity. Avirulent EVA is completely safe—cannot cause infection.

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Journal of the American Veterinary Medical Association

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## Correspondence

Sept. 20, 1957

Dear Dr. Aitken:

The letter from Dr. D. W. Bruner, published in the JOURNAL for Aug. 15, 1957, calls attention to one factor in the treatment of envenomation that still evokes some question in the mind of the clinician. So many variables affect the outcome of any poisonous snakebite that efficacy has been attributed in the past to numerous treatments which in reality were completely useless or even harmful.[1] Since, for centuries, nothing was available for management of envenomation but mechanical measures, faith in such methods has become pretty firmly entrenched.

Certain physicians who practice general medicine in snake-infested areas, and who are likely to see a number of envenomated patients during the course of their careers, are coming to appreciate more keenly the fact that surgical intervention should not be necessary if serotherapy is adequate; *i.e.*, the initial dose is large enough to overwhelm the toxin.

A practitioner of general medicine,[2] in a rural area of the South, states, "I have long taught that there is no value in incision and suction and that if any significant amount of venom is to be removed locally, early, rather wide excision is required. This would be impossible on foot, ankle, anterior surface of the lower leg, and on the hands and forearms. Wide excision of any suitable body area would, of course, entail subsequent plastic surgery." He concurs with the findings of Leopold and co-workers.[3]

This physician emphasizes that the smaller the body of the envenomated victim, the larger the initial dose of serum required to neutralize the venom. For example, in a patient weighing 100 to 150 pounds or more, symptoms of snake poisoning may be controlled by only 1 unit of antivenin, whereas for a 20- to 40-pound patient (human or animal), 3 to 5 units or more may be required, depending on the virulence of the venom received and the lapse of time between bite and specific treatment. He also recommends immediate application of ice water, by compress or immersion, to slow spread of venom and to help relieve pain (but claims no therapeutic influence on the envenomated tissue or alteration of the toxicity of the venom). In his practice, he states, application of cold is discontinued after neutralizing the venom with an adequate dose of antivenin.

In an experimental study on dogs,[4] it is stated that early and wide excision of tissue saved two-thirds of the animals, whereas all treated by incision and suction died. However, this observer emphasizes that benefit from such surgical treatment may be expected only if the victim is seen early (within 60 minutes after the bite), the bite is suitable for excision, and an adequate amount of tissue is excised. He stresses the fact that these measures do not take the place of antivenin, antitoxin, blood transfusion, and antibiotics.

Very sincerely,
s/R. T. McCarty, D.V.M.,
Philadelphia, Pa.

[1]Klauber, L. M.: Some Factors Affecting the Gravity of Rattlesnakebite. Venoms. Edited by E. Buckley and N. Porges, Washington, D.C., American Association for the Advancement of Science (1956): 321.
[2]Miller, D. G.: Personal communications, August, 1957.
[3]Leopold, R. S., et al.: An Evaluation of the Mechanical Treatment of Snakebite. Military Med., 120, (June, 1957): 414-416.
[4]Parrish, H. M.: Early Excision and Suction of Snakebite wounds in Dogs. Venoms. (1956): 399.

**CONTENTS—Continued**

# News From Washington

**Legislative Action.**—The following Public Laws passed during the First Session of the 85th Congress, not previously reported, may be of interest:

P.L. 85-109 extends through June 30, 1958, the time for filing an application for preservation of old-age, survivor, and disability insurance rights. Rights under the "freeze" provision allow a person severely disabled, prior to Jan. 1, 1955, to file for a drop-out of those years in which they were not wage earners and still get increased benefits.

P.L. 85-168 provides increases to veterans in service-connected disability payments, and increased dependency allowances.

P.L. 85-243 designates the week of November 22-28, 1957 as National Farm-City Week.

* * * *

**Miscellaneous.**—Secretary of Agriculture Benson, on August 30, 1957, assigned to AMS, U.S.D.A., the responsibility of administering the **Poultry Products Inspection Act:** P.L. 85-172 (see JOURNAL, Sept. 15, 1957, adv. p. 6).

* * * *

**The Atomic Energy Commission** is starting a program which will make professional schools (including schools of veterinary medicine), colleges, and universities eligible for up to $250,000 each in **grants for the purchase of specialized radiation equipment and teaching aids in radiobiology.** Information is obtainable upon request to the Director, Division of Biology and Medicine, U. S. Atomic Energy Commission, Washington 25, D.C.

* * * *

**Tax Hearings.**—Chairman Jere Cooper (D., Tenn.) in an announcement stated that the general tax revision hearings (see JOURNAL, Sept. 15, 1957, adv. p. 6) must be concluded by Feb. 7, 1958. Persons desiring to appear and testify before the Committee should submit their request to the Clerk, Room 1102, New House Office Building, House of Representatives, Washington 25, D.C., not later than Dec. 2, 1957. All written statements, both for presentation in person to the Committee and those submitted for printing in the record of the hearings, should be submitted to the Clerk, not later than Dec. 15, 1957. The Chairman also stated that in order to keep down the number of witnesses groups should combine and coordinate their presentations.

* * * *

**Research and Education.**—A special committee, consisting of medical leaders and industrialists, has been appointed by Secretary Folsom, Department of H.E.W., to advise him on the situation of medical research and education, including a review of the Department's activities in those areas. The chairman is Dr. Stanhope Bayne-Jones, former dean of Yale Medical School and more recently president of the joint administration board of the New York Hospital, Cornell Medical Center. Among the questions the committee has been asked to study are: (1) impact of research programs on medical education; (2) availability of scientists, technicians, and facilities; (3) relative emphasis to research in the various disease fields; (4) relative emphasis given to fundamental studies in the basic sciences generally; (5) relationship between federal and private research programs; (6) standards for approval of research projects.

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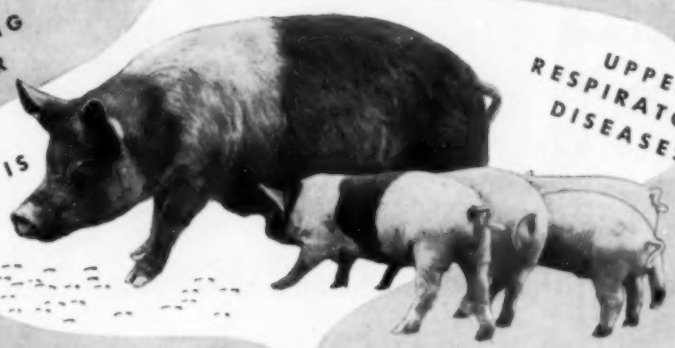
UPPER RESPIRATORY DISEASES

LARYNGITIS



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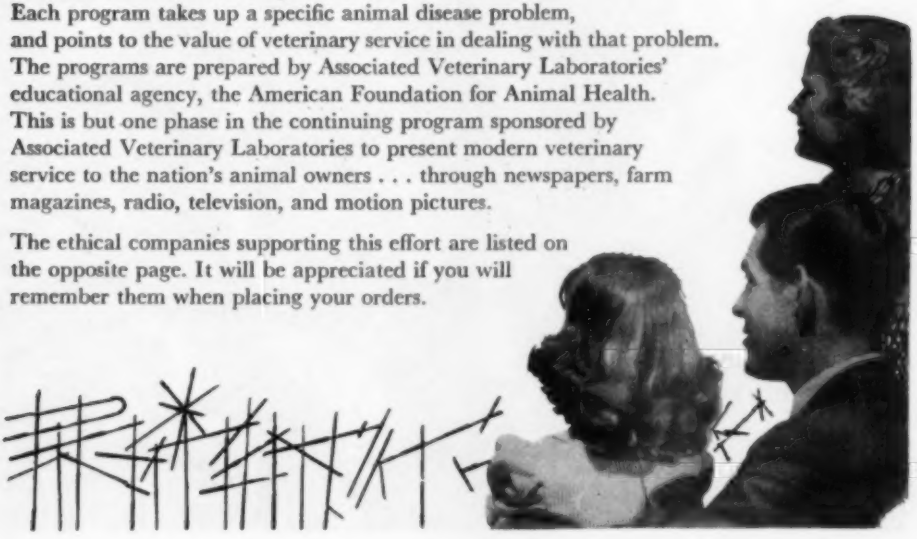
**The ethical companies supporting this effort are listed on the opposite page. It will be appreciated if you will remember them when placing your orders.**



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*Jones, S. V.; Belloff, G. B., and Roberts, H. D. B.: Vet. Med. 51:413 (Sept.) 1956.

**For vaginal infections, including those caused by Vibrio fetus, that may prevent conception, or cause abortion, dispense: FURACIN Suppositories Veterinary, large. Box of 12.**

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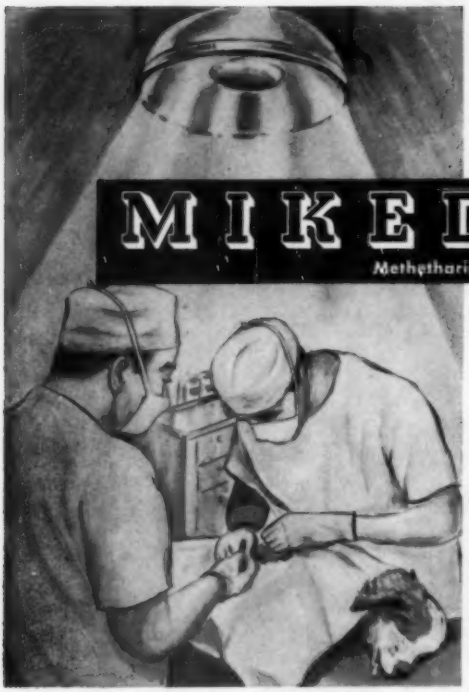

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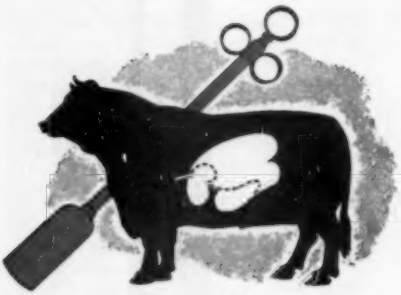
**LIVESTOCK PARASITE PROBLEM INCREASING DUE TO PASTURE IRRIGATION**

*Here's one answer to the problem:*



# New 3-Step Program for Control of Internal Parasites in Livestock

With the modern trend to irrigated pastures, and to heavier concentrations of livestock on these pastures, the problem of internal parasites is getting more serious. Irrigation provides moisture conditions and even temperatures at which parasites thrive. As a result, losses to gastrointestinal parasitism are estimated to run into several million dollars annually. *Yet few farmers realize the seriousness of the worm problem.*

To impress farmers with the importance of having animals checked and treated for internal parasites—even when they are apparently healthy—International Salt Company is backing a new "3-step program" for internal parasite control. The first two steps of this program depend entirely on veterinary knowledge and skill.

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**Step Three:** Daily low-level feeding of phenothiazine in salt (the ideal natural carrier), to maintain constant suppression of viable eggs. This important program is being promoted to farmers, feed mixers, manufacturers and dealers everywhere. In this promotion, we are showing how the veterinarian plays a vital role in helping cattle producers, dairymen, and sheepmen make more profits.

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**Service—from International's Animal Nutrition Department.** If you'd like more data on Sterling Green'salt, or information on the use of salt and trace minerals in modern livestock- and poultry-feeding programs—contact International's Animal Nutrition Department at Watkins Glen, N. Y. This department does continuing research into the proper feeding of salt and trace minerals . . . works with veterinarians, farm advisors, feed mixers and manufacturers . . . and coordinates advanced test programs with leading colleges and experiment stations. We will be glad to cooperate with you in any way.

**STERLING GREEN'SALT** SALT + 10% PHENO + TRACE MINERALS

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JOURNAL
of the American Veterinary Medical Association
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# The Survival of *Brucella Abortus* (U.S.D.A. Strain 2308) in Manure

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IT IS KNOWN that *Brucella abortus* is eliminated from the vagina and thus may contaminate fecal material and bedding, which poses the problem of the disposal of manure and other wastes from Brucella-infected animals. This is particularly important where disease-free animals, used in production studies, are maintained on the same farm. Investigators are frequently asked how long the manure from infected animals must be held in manure pits before it is safe to be spread on pastures to be used by disease-free animals.

Brucella organisms are sensitive to sunlight and are readily killed by common disinfectants and by standard pasteurization. They are believed to live only a short time in pastures and barnyards, unless they are covered with manure or other protective material. The resistance of the bacillus to certain natural influences was found[6] to be as follows: It lived four and one half hours exposed to direct sunlight; five days when dried in burlap sacking and kept in an ordinary room; 30 days when dried in burlap sacking and kept in an unheated cellar; 37 days when dried slowly in soil; four days in bovine urine; 120 days in bovine feces dried slowly in a dark cupboard; and 75 days in an aborted fetus during cool weather.

In other trials,[2] *Br. abortus* survived 120 days in manure, 77 days in water, and 66 days in wet soil at room temperature. In similar studies[6] it survived ten days in water and 29 days in manure and soil at 77 F. However, in manure and soil stored continuously at freezing or near freezing temperatures, *Br. abortus* survived for periods up to 800 days.

*Brucella suis* was cultured from hog spleens which had been held for 30 days at -10 F.[5] Positive cultures were also obtained at the end of 40 days from hog spleens kept in meat-curing brine.

When phenolized anti-hog cholera serum and blood virus were inoculated with *Br. suis* and stored in a cold room, positive cultures were obtained from the former after 12 weeks and from the latter after five months.[4]

When milk, naturally infected with *Br. abortus*, was stored in an icebox at 50 F., the organism was not viable after the tenth day.[3]

When ice cream was made from milk naturally infected with *Br. abortus* and stored at 32 F., the organism remained viable for 30 days.[9] And when butter was inoculated with *Br. abortus* and stored at 46 F., the organism remained viable for 142 days.[8] It survived in Roquefort cheese for two months. In milk it was found[1] that *Brucella melitensis* and *Br. abortus* are killed at 140 F. in 15 minutes but not in ten minutes; that *Br. suis* is completely destroyed in 20 minutes at 140 F. or 15 minutes at 142 F.; and that at 145 F. all three species are destroyed in ten minutes. Using a standard pasteurizing unit, a temperature of 143.6 to 145.4 F. applied three minutes was sufficient to kill both *Br. abortus* and *Br. suis* in milk.[7]

This work was undertaken to determine (*a*) the temperatures within a manure pit where wastes from Brucella-infected

From the Department of Veterinary Science, Ohio Agricultural Experiment Station, Wooster. From a dissertation submitted to the graduate school, Ohio State University, Columbus, in partial fullfillment of the requirements for the degree of Doctor of Philosophy.

The author thanks the staff of the Animal Disease and Parasite Research Division, U.S.D.A., for supplying the Brucella culture and to various associates for assistance.

Fig. 1—Photograph showing the construction of the manure pit.

Fig. 2—The doors on the top of the manure pit.

animals were stored, and (*b*) the effect of these temperatures on the survival time of *Br. abortus* strain 2308 under these conditions.

## MATERIALS AND METHODS

The manure pit used was 26 by 19 by 6 ft. Three sides, part of the roof, and the floor were of concrete construction. One side and part of the roof were constructed of removable doors to facilitate the emptying of the pit by machinery (fig. 1). A concrete 10-inch wall divided the pit in half. Small wooden lids in the roof of the pit were removed at the time of adding wastes to the pit (fig. 2). The pit was entirely closed except during the filling and emptying operations.

Wastes including feces, urine, and bedding (usually straw) from 15 adult cattle were added to this pit during the periods of observation. The cattle were housed in individual stalls in an adjacent isolation building. The quarters were cleaned and new bedding added daily except on Sundays.

The temperatures within the manure pit were determined by a laboratory grade, armored thermometer (graduated −15 to 105 C., 3 to 220 F.) on a 6-ft. pole which was lowered to the desired depth in the pit at least once and sometimes twice daily. Readings were usually taken approximately 1 ft. from the bottom of the pit where the manure was the deepest and at the same depth against the outside wall. A few readings were taken on the surface of the manure.

The mean weather temperatures were taken from the monthly weather reports.

*Brucella abortus*, strain 2308, was used throughout the following survival investigations. This strain does not require increased carbon dioxide tension for growth and is widely used in the United States as a challenge culture to evaluate the efficacy of various Brucella vaccines.

The organism was grown on tryptose agar slants and then transferred to tryptose broth and incubated at 100 F. for 48 hours. The number of cells was not determined. Viability was determined by transferring portions of these inoculated materials to tryptose agar plates. One milliliter of inoculum was dispersed over the surface of the medium with a sterile glass spreader. All plates were incubated aerobically at 100 F. for 14 days before final determinations were made. The colonies were identified as Brucella on the basis of colony morphology and by agglutination tests using saline suspensions of the selected cultures with known positive and negative *Br. abortus* serums.

*Broth cultures.*—Ten milliliters of a 48-hour broth culture of strain 2308 was added to each of two sterile tubes. The tubes were wrapped in foil and one was placed in the manure pit by securing it to a wooden pole and driving it into the deepest part of the manure pile. The remaining tube was incubated at 100 F. for the period of observation.

*Manure and Broth Cultures.*—Approximately 15 Gm. of feces of normal consistency and 10 ml. of saline solution were mixed, and divided equally into two test tubes. The tubes were plugged with cotton and then sterilized by autoclaving. Ten milliliters of a 48-hour broth culture of strain 2308 was added to each tube and mixed with the contents. The tubes were wrapped in foil and one was placed in the manure pit and the other incubated at 100 F. for the period of observation.

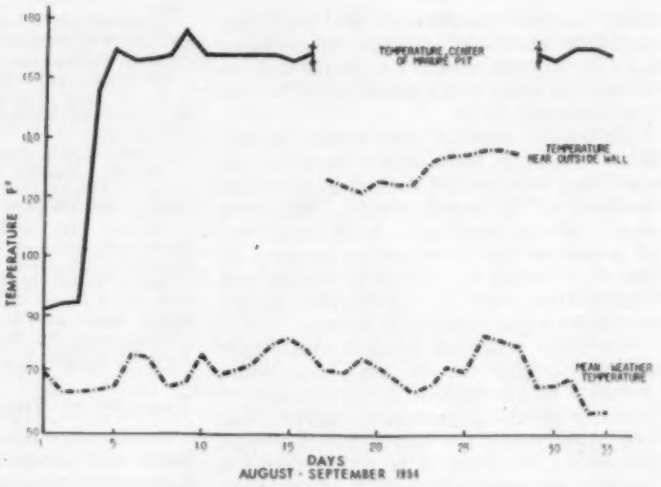
TABLE 1—Survival Time of Brucella Abortus Strain 2308

| Culture | No. of hours | | | |
|---|---|---|---|---|
| | 0 | 4 | 8 | 18 |
| Culture in Manure Pit at 158 F. | | | | |
| Broth culture | + | − | − | − |
| Manure and broth culture | + | − | − | c |
| Control Culture in Incubator at 100 F. | | | | |
| Broth culture | + | + | + | + |
| Manure and broth culture | + | + | + | + |

c=contaminated; +=Brucella growth; −=no Brucella growth.

## RESULTS

The survival time of the organism under these conditions is shown (table 1). Broth




**Graph 1—Manure pit and mean weather temperatures for a summer observation period.**

cultures of *Br. abortus* strain 2308 were killed in less than four hours when placed near the bottom of the manure pit. When a similar broth culture was mixed with sterilized manure and placed in the same location of the pit, Brucella could not be cultured from the mixture after a four-hour period. Control cultures placed in the incubator at 100 F. were viable for at least 18 hours. Cultures placed near the top of the manure mass survived for at least 48 hours.

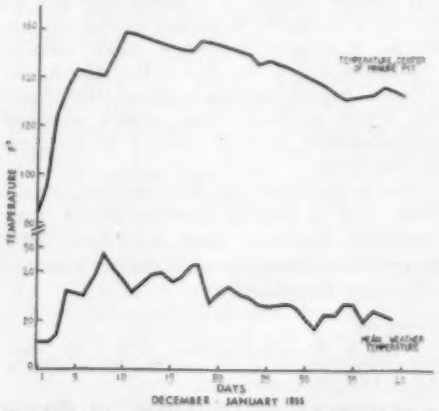
The temperatures within the manure pit and the mean weather temperatures are shown for a comparable period during August and September (graph 1) and during December and January (graph 2). Observations were started at the time of emptying and refilling the pit. They were made during the approximately four-week filling period, for one side of the pit, and continued for a two-week period after the side had been filled.

The maximum pit temperatures recorded during the summer and winter periods were approximately 170 and 158 F. respectively. Temperatures reached a maximum usually seven to ten days after the filling process began, remained near the maximum for about a week, then slowly declined to approximately 20 to 25 degrees lower at the time of emptying.

The maximum readings in the corners and near the outside walls were somewhat lower, ranging from 132 to 144 F. The surface temperatures ranged from 113 to 120 F.

## DISCUSSION

In this study, natural conditions have not been duplicated. A factor which one should consider in the duration of viability of *Br. abortus* is the presence of other organisms and their products. Common saprophytic and pathogenic bacteria, molds, and yeasts probably have a deleterious effect on this organism. Since these factors were eliminated, the organism probably would not have lived any longer when subjected to corresponding influences under




**Graph 2—Manure pit and mean weather temperatures for a winter observation period.**

more natural conditions. Although the organism survived less than four hours near the bottom of the pit, it did survive at least 48 hours when placed on top of the manure mass.

While *Br. abortus* was found[2] to remain viable in feces under experimental conditions for over 100 days, it is extremely doubtful if it would survive that long under natural conditions, whether on top of a manure pit or spread on pasture. In the pit, it would be subject to rotting and fermentation, and in the pasture to the sunlight's rapid germicidal action.

Since the organism remains viable only a relatively short time in urine, there would probably be a reduction in the duration of viability of the organism in mixed feces and urine which are excreted in a weight proportion of about 4 to 1. Neither the chemical analysis nor the pH of the manure was determined in this experiment.

Additional and more detailed studies of this nature are needed because of the increased expansion of facilities for carrying on animal disease research of this nature.

SUMMARY

The manure and other wastes from 15 adult cattle housed in individual box stalls filled a manure pit (13 by 9 by 6 ft.) in approximately four weeks.

Temperatures within the pit were recorded during the filling period and for at least two weeks thereafter. The maximum pit temperatures recorded were approximately 170 F. during a summer and 158 F. during a comparable period in the winter. These maximum readings were usually reached seven to ten days after the filling process began, remained near that level for about a week, then slowly declined approximately 20 to 25 degrees by the time of emptying.

Broth cultures of *Br. abortus* strain 2308, and a similar culture mixed with sterilized manure, were nonviable four hours after being placed in the pit near the recording thermometer.

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## Reports on Zoonoses

*Leptospirosis.*—In Iowa, a woman, whose work was removing kidneys from freshly killed hogs in a packing house, developed a fever, chills, severe headache, and nuchal rigidity. She was treated with chloramphenicol intramuscularly and recovered in ten days but, five weeks later, a low grade fever and headaches returned. Her agglutination test was positive 1:256 for *Leptospira pomona*, and 1:64 for *Leptospira sejroe*. —*Aug. 6, 1957.*

In Missouri, 3 cases of leptospirosis in man were attributed to direct contact with an infected herd of beef cattle. Their illness was not suspected of being leptospirosis until the disease was diagnosed in the cattle, 6 of which had died in the previous five months. Serological findings indicated *L. pomona* infection in both species. —*Aug. 30, 1957.*

In Utah, *Leptospira canicola* infection was confirmed in children in Salt Lake City. Six dogs in the same area were also positive.—*Aug. 30, 1957.*

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*Anthrax.*—Anthrax appeared in the northeastern part of Oklahoma the second week of July. On August 9, losses were estimated at 500 cattle, 125 sheep, 25 hogs, and 10 horses. More than 119,500 animals had been vaccinated and no illness has been observed in animals vaccinated eight days or longer. The epizootic is considered to be under control. The only reported case in a human being was successfully treated.

By August 20, 1,199 cases and 973 deaths had been reported. Antibiotic therapy saved many animals.—*Sept. 6, 1957.*

[An excess of rains, floods, and insects was believed to be responsible for spreading the infection.]

In Kansas, anthrax was diagnosed in cattle on August 7; in the next 17 days, over 500 cases were reported on 235 premises.—*Sept. 6, 1957.*

In Montana, the first anthrax (16 cases) in the country in three years occurred on four premises. The last report of anthrax on these premises was in 1918. Contaminated sheds and feeding facilities were burned.—*Sept. 6, 1957.*

In Pennsylvania, a man developed anthrax four days after working with broken bags of crushed cattle bones shipped from Bombay, India. It started as a small pimple on his forearm but soon the arm was swollen and he was feverish and anoretic. Bacillus anthrax was recovered from the bones.—*Sept. 6, 1957.*

In Arkansas (southwestern), anthrax in cattle was reported on August 26 in a long-infected area. Over 80 per cent of the cattle were already vaccinated and the balance are being vaccinated.—*Sept. 6, 1957.*

In Arkansas, in a different (southeastern) portion, an inflamed area developed on the hand of a veterinarian five days after he was bitten by an insect while doing a necropsy on a cow. In seven days, this became a papule and the hand and wrist were badly swollen. He was only slightly ill and his temperature did not exceed 100 F. Anthrax bacillus was isolated from the lesion. Anthrax had been present in the area but no cases had been reported in two years. The dead cow did not have anthrax.—*Aug. 23, 1957. Morbidity and Mortality, U. S. Pub. Health Service.*

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*Anthrax in Hounds.*—Two of a litter of 9 Foxhound pups, 7 weeks old, and 10 of 70 adults in the kennel became ill the same day. One pup was found dead, its throat so intensely swollen that it had obviously died of asphyxia. *Bacillus anthracis* was recovered from this specimen. The other pup had a temperature of 105 F., slightly blood-stained feces, and a markedly swollen face and throat. The adults had temperatures of 103 to 105 F. and depressed appetites. All recovered on penicillin therapy—1 million units each the first day, then 500,000 units daily for five days. The infection may have come from a cow carcass fed 18 days previously.—*M. E. Davies, et al. in Vet. Rec. (Aug. 17, 1957): 775.*

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*Leptospirosis in a Laboratory Worker.*—When a laboratory worker handling cultures of the *Leptospira javanica* serogroup dropped a syringe, the needle penetrated his foot and penicillin therapy failed to prevent infection. The patient had signs of leptospirosis on the tenth day and leptospiras were isolated from his blood. His condition improved after he had been given 250 mg. of oxytetracycline every six hours for five days.—*J.Am.M.A. (June 22, 1957): 912.*

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*Leptospirosis and Periodic Ophthalmia.*—Of 1,182 horses tested, in Germany, 370 (31.3%) had positive titers for various Leptospira and 64 of the 370 were "moon blind." Of the 64, 40 were positive to *Leptospira grippotyphosa*, 13 to *Leptospira icterohaemorrhagiae*, 6 to *Leptospira pomona*, and 5 to *Leptospira canicola*. Of 15 cats examined, 2 were positive to *L. canicola* and 1 of these was completely blind.—*Berl. u. Munch. Tierärztl. Wchnschr. (May 1, 1957): 183.*

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*Histoplasmosis in Man.*—Forty-one epidemics of histoplasmosis, 38 involving 400 persons in 17 states, are reviewed. The incubation period varied from seven to 14 days. Lung lesions and illness occurred in most of those exposed, the number of lesions being roughly related to the degree of exposure. Of the 41 epidemics, 22 were associated with exposure to bird excreta, including chicken excreta (12), pigeon excreta (7), and bat excreta (3). Playing in a cellar, barn, or cave accounted for 13 infections. Most of the patients recovered. The disease has been reported from almost every country in the world.—*J.Am.M.A. (July 6, 1957): 1155.*

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*Q Fever.*—In Kenya, where *Rickettsia burneti* infection is widespread, complement-fixation tests for antibodies were positive in 3 of 4 dogs, none of 17 horses, 4 of 20 camels, 96 of 283 goats, and 14 of 190 cattle.—*Vet. Bull. (Aug., 1957): Item 2414.*

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*Rabies in Bats.*—Rabies infection in Florida bats is widely disseminated. The lowest infection rate was found in bats living intimately in colonies where spread of infection would be facilitated and was highest in free-living bats which are dispersed in nature. Of 35 bats, with some apparent abnormality, 5 (14%) were rabid. Of 12 that had bitten human beings,

4 (33.3%) were found to have rabies. In almost 50 per cent of the infected bats, Negri bodies were not demonstrated by brain smears. There is suggested evidence of a correlation between the finding of rabid bats and sporadic rabies in raccoons and other wild carnivores. One rabid bat fell in a yard and bit a dog. The role of the bat as a reservoir for rabies may be presumed though it has not been proved.—*Am. J. Pub. Health (Aug., 1957): 983.*

## Hog Cholera in Georgia

Hog cholera was seen more often at the Tifton (Ga.) Diagnostic Laboratory, in the three winter months than any other specific swine disease. In nine of the 36 herds involved, the swine probably were in the incubative stage when vaccinated. Signs of cholera usually appeared about ten days after the hogs were brought to the farm; only part of the animals were affected, and no new cases developed after two to three weeks. In only one of the 36 herds did cholera develop after the pigs had time to develop immunity; these were vaccinated by a layman and details were not obtainable. In 12 months, cholera was diagnosed at the laboratory 106 times, erysipelas 31 times, and other diseases less frequently.—*Georgia Vet. (March-April, 1957): 9.*

The following addendum to the item above was requested:

Available details from 12 typical case histories on affected groups of swine, purchased after vaccination at sale barns, in Georgia, other than those mentioned above, are given in table 1.

*Relationship Between Measles and Canine Distemper Viruses.*—Canine distemper immune serum from ferrets inhibited cytopathogenesis by measles virus in cell cultures, whereas serums from nonimmunized ferrets did not. Inoculation with measles virus gave some protection to ferrets against challenge with virulent distemper virus; the incubation period was prolonged, the course of the disease modified, and 9 of the 21 survived whereas 14 of 15 controls died.—*Vet. Bull. (Aug., 1957): Item 2410.*

*A Pneumoneurotropic Infection of Swine.*—Two pigs placed in contact with a naturally infected pig, in France, developed a fever and died in 8 and 17 days. The necropsy findings—pulmonary abscesses and adhesions—were similar to those following natural infection. Intracerebral injections of 2 pigs with a suspension of infected brain tissue also was followed by a fever and death in 8 and 17 days with similar necropsy findings. Mice, guinea pigs, and rabbits similarly inoculated intracerebrally developed no signs of infection.—*Vet. Bull. (Aug., 1957): Item 2399.*

tality. Some affected pigs recover after showing typical clinical signs of cholera, and typical lesions are found in those which die. At necropsy, the lungs are often essentially normal on both gross and microscopic examination.

Injection of filtered spleen suspensions from affected animals produced, in susceptible swine, a typical febrile response (to 106 F.) and severe leukopenia.—*M. W. Hale, D.V.M., Georgia Coastal Plain Experiment Station, Tifton.*

TABLE 1—Typical Case Histories of Swine with Hog Cholera

| Date | No. of pigs | Vaccine used | Days from vaccination to illness | No. ill | Days ill | No. died |
|---|---|---|---|---|---|---|
| 9/25/56 | 21 | MLV | 14 | 15 | 8 | 5 |
| 10/ 1/56 | 23 | MLV-no serum | 12 | 8 | 14 | 0 |
| 10/15/56 | 67 | MLV | 20 | 15 | 6 | 8 |
| 10/17/56 | 25 | MLV | 14 | 10 | 4 | 4 |
| 10/29/56 | 10 | MLV | 5 | 7 | 7 | 7 |
| 10/31/56 | 4 | MLV | 14 | 2 | 8 | 2 |
| 10/31/56 | 113 | MLV | Varied | --- | 10 | 35 |
| 4/ 2/57 | 80 | MLV | 15 | --- | --- | 5 |
| 4/ 8/57 | --- | MLV | Varied | 14 | 8-20 | Many |
| 4/12/57 | --- | MLV | 7-20 | 15 | 7-10 | 12 |
| 4/20/57 | 300 | MLV | 15 | 100 | 7-10 | 0 |
| 5/21/57 | 150 | MLV | 10 | Most | 5-7 | 100 |

# More AVMA Convention Highlights

A total of 3,458 individuals registered their attendance for the Ninety-Fourth Annual Meeting (Aug. 19-22, 1957) in Cleveland, Ohio.

### Official Registration Figures

| | | |
|---|---|---|
| Veterinarians | 1,837 | 53.1% |
| Women | 847 | 24.5% |
| Children | 272 | 7.9% |
| Exhibitor representatives | 389 | 11.2% |
| Students | 42 | 1.2% |
| Guests | 71 | 2.1% |
| Total | 3,458 | 100.0% |

### Geographic Distribution

| | |
|---|---|
| South Central | 243 |
| East North Central | 1,634 |
| West North Central | 406 |
| Western | 151 |
| South Atlantic | 354 |
| North Atlantic | 576 |
| Other Countries | 94 |
| Total | 3,458 |

The five states with the highest number of registrants were: Ohio, 777; Illinois, 300; Indiana, 256; New York, 211; Michigan, 208.

TABLE I—Regional Distribution of Registrants at the Cleveland Meeting, Aug. 19-22, 1957

| | |
|---|---|
| **NORTH ATLANTIC** | |
| Maine | 13 |
| New Hampshire | 6 |
| Vermont | 8 |
| Massachusetts | 46 |
| Rhode Island | 7 |
| Connecticut | 22 |
| New York | 211 |
| New Jersey | 62 |
| Pennsylvania | 201 |
| Subtotal | 576 |
| **EAST NORTH CENTRAL** | |
| Ohio | 777 |
| Indiana | 256 |
| Illinois | 300 |
| Michigan | 208 |
| Wisconsin | 93 |
| Subtotal | 1634 |
| **WEST NORTH CENTRAL** | |
| Minnesota | 51 |
| Iowa | 116 |
| Missouri | 107 |
| North Dakota | 10 |
| South Dakota | 24 |
| Nebraska | 39 |
| Kansas | 59 |
| Subtotal | 406 |
| **SOUTH ATLANTIC** | |
| Delaware | 17 |
| Dist. of Columbia | 56 |
| Maryland | 70 |
| Virginia | 64 |
| West Virginia | 30 |
| North Carolina | 23 |
| South Carolina | 6 |
| Georgia | 38 |
| Florida | 50 |
| Subtotal | 354 |
| **SOUTH CENTRAL** | |
| Kentucky | 63 |
| Tennessee | 28 |
| Alabama | 25 |
| Mississippi | 4 |
| Arkansas | 5 |
| Louisiana | 17 |
| Oklahoma | 33 |
| Texas | 68 |
| Subtotal | 243 |
| **WESTERN** | |
| Montana | 3 |
| Idaho | 3 |
| Wyoming | 8 |
| Colorado | 29 |
| New Mexico | 4 |
| Arizona | 8 |
| Utah | 10 |
| Nevada | 2 |
| Washington | 19 |
| Oregon | 7 |
| California | 58 |
| Subtotal | 151 |
| **OTHER COUNTRIES** | |
| Canada | 77 |
| U. S. Possessions | 10 |
| Foreign | 7 |
| Subtotal | 94 |
| Grand Total | 3,458 |

## Awards Presented at the Cleveland Meeting

### Citation—Practitioner Research Award

### Dr. William G. Magrane

Dr. William G. Magrane was born in Michigan. He received his primary and secondary education in Indiana and his D.V.M. degree from Michigan State University in 1940.

Dr. Magrane (right) receives the practitioner Research Award from Dr. Robert Getty, Chairman of the AVMA Research Council.

Upon graduation, he entered general practice with his father and later his brother at Mishawaka, Ind. In addition to conducting a busy and successful practice, Dr. Magrane has authored 34 articles, many relating to canine ophthalmology. He has presented papers to 66 local, state, and national association meetings on various facets of canine ophthalmology.

In 1953, he applied for and received an AVMA Research Fellowship to pursue graduate work in the Department of Ophthalmology, Graduate School of Medicine, University of Pennsylvania. Upon successful completion of his graduate courses in 1953-1954, Dr. Magrane returned to private practice which he continued to conduct in addition to following a two-year preceptorship under a board-certified preceptor. His thesis, "Canine Glaucoma," was accepted by the Graduate School of Medicine, University of Pennsylvania, when the degree M. Sc. (Med.) was granted to Dr. Magrane in February, 1957.

Dr. Magrane was awarded the Gaines "Veterinarian of the Year" award in 1955 (for 1954). At present, he is president-elect of the American Animal Hospital Association.

It is in recognition of Dr. Magrane's enduring interest in, and contribtions from, his research efforts, as a practitioner, "beyond the call of duty" that he has been selected to receive the second AVMA Research Council Award for research by a practitioner.

## Citation—1957 Borden Award

### Dr. Samuel H. McNutt

Dr. Samuel Hezekiah McNutt was born in Algona, Iowa, on July 15, 1892. He received his D.V.M. degree at Iowa State College in 1917. He was assistant pathologist, Iowa State College in 1917; assistant professor, veterinary medical research, 1918-1932; associate professor, 1932-1934; professor, 1934-1946; professor, veterinary pathology, University of Wisconsin, 1946-1956; chairman of the Department, 1956-19—.

Dr. McNutt (right) receives the Borden Award from Mr. John McCain, secretary of the Borden Company Foundation, at the Cleveland meeting.

Since the time of Dr. McNutt's graduation until 1927, he had the major responsibility for the Diagnostic Laboratory at Iowa State College, where working with Dr. Murray, comprehensive studies on pullorum disease in poultry and tuberculosis in swine were made.

In addition to extensive interest in swine diseases, Dr. McNutt's greatest contributions have been in diseases of cattle.

He studied brucellosis in all species with primary emphasis on the epidemiology and epizootiology of the disease. He, with others, demonstrated how brucellosis spread from animals to man by direct and indirect contact. This work was the stimulus that led to the program of eradication of brucellosis. He and associates studied the evaluation of vaccination of cattle against brucellosis.

Because brucellosis in cattle is often associated with sterility in cattle, he began studies on reproductive failures. He and Dr. F. E. Walsh showed that *Trichomonas fetus* is one of the causes of such failures in Iowa.

In the early 1920's, he began research on *Vibrio fetus* infection in cattle and demonstrated that it is a venereal disease and responsible for a part of the breeding troubles in cattle. He discovered sporadic bovine encephalitis which is caused by a psittacosis-like organism. This has contributed to a better understanding of other encephalitides such as rabies, malignant head catarrh, listeriosis, and mad itch.

Since going to Wisconsin, he has studied the function and uses of progesterone in cattle, also reproductive failures not caused by infection, as well as bovine leptospirosis.

Dr. McNutt has helped to train veterinarians and others in graduate study and has contributed unselfishly to cattle disease control by consultation and participation in local, state, and national scientific programs.

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## Citation—1957 AVMA Award

### Dr. O. H. Person

Dr. O. H. Person, Wahoo, Neb., a graduate of Kansas City Veterinary College in 1913, was nominated for this honor by the people who know him best—his professional colleagues and friends in his own state—people who know not only his qualifications for such honor but also as a man, a citizen, and a member of the profession.

Dr. Person (right) receives the 1957 AVMA Award from President Kester.

Dr. Person is well known for his work for the betterment of the veterinary profession and for the welfare of his state, where he has rendered service to the Nebraska legislature for ten years and also for sponsorship of legislation for the veterinary and medical professions; for active interest in promoting good public relations, faithful work on committees, and an always-ready willingness to act when animal disease problems have arisen.

He has been prominently identified as an outstanding practitioner and stock farmer, mayor of his home city for 16 years, with a fine record as past-president of the Nebraska Veterinary Medical Association.

Dr. Person is also highly regarded for his personal integrity, high professional standards, and leadership qualities—all of which have contributed to the good of the veterinary medical profession in Nebraska and serve as an example for the profession as a whole.

### Citation—AVMA Certificates of Appreciation

### Dr. E. A. Cahill, Sr., and Allied Laboratories, Inc.
### Mr. Walter Lawrence and Radio Corporation of America

These awards are unique this year in that they represent dual citations in recognition of highly significant contributions of a team of persons and organizations whose joint interests, financial support and technical know-how have made possible the most important development in the scientific programs of AVMA conventions in recent times—namely, the closed circuit television demonstrations which have featured the Section programs for the past seven years.

Credit and appreciation for this development which has contributed so much to the interest and value of AVMA sessions is shared by many people—the television participants themselves, the director—commentator, the studio crews and assistants, and many others who have helped to stage the demonstrations. But for the purpose of these awards today, two men and the organizations they represent have been selected by the AVMA Committee on Awards: Dr. E. A. Cahill, Sr., recently retired president of Allied Laboratories, Inc., and Mr. Walter Lawrence, director of shows and exhibits for Radio Corporation of America.

Dr. Cahill is well known to the veterinary medical profession as a stalwart supporter and defender of ethical practices and products, ever ready to throw his personal and his organization's strength behind measures that would benefit not only qualified veterinarians but also owners of livestock. This support has included, over the years, generous backing of educational and public relations programs for the benefit and better appreciation of the services of American veterinarians and, for the past seven years, of the closed-circuit telecasts already mentioned.

Mr. Walter Lawrence has brought to the television feature of AVMA programs a wealth of talent, understanding, and technical ability, as well as an acute sense of values. He is known nationally and internationally for these qualities and is often the man behind the scenes in the highly technical television presentations that feature medical and surgical congresses in all parts of the world. It is one of the penalties of his career that he is the genius behind the T.V. camera rather than in front of it.

President Kester (center) presents certificates of appreciation to Mr. Walter Lawrence (left), of Radio Corporation of America, and to Mr. E. A. Cahill, Jr., who accepted the certificate for his father who was unable to be present.

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### Citation—Twelfth International Veterinary Congress Prize Dr. Edward Records

Dr. Edward Records was born in Los Angeles, Calif., March 15, 1887; he received his veterinary medical degree from the University of Pennsylvania in 1909, practiced for about a year, and then became a laboratory assistant for the Pennsylvania Livestock Sanitary Board. For the next few years he served as veterinary bacteriologist for the H. K. Mulford Company.

In 1914, Dr. Records began his long career with the University of Nevada, where he was successively assistant bacteriologist, head of the department of veterinary science, executive officer of the State Board of livestock Commissioners, and director of the State Veterinary Control Service, which position he still holds.

He has served his state association and the AVMA in many ways, being resident secretary and a life member of the latter; he was also a member of the AVMA Research Council from 1941 to 1947.

As author and co-author of more than 30 publications on livestock diseases and their control, Dr. Records has made outstanding contributions to veterinary medical science and has earned wide recognition as a scientist, livestock conservationist,

Dr. W. F. Fisher, of Nevada (right), accepts the Twelfth International Veterinary Congress Prize for Dr. Records.

and bacteriologist-pathologist. Best known, perhaps, is his work with Vawter on "red water" disease or bacillary hemoglobinuria, white muscle disease in calves, fowl cholers, hog cholera, rabies, and equine encephalomyelitis.

Thus, in 48 years as a veterinarian, Dr. Records compiled a distinguished record as a research worker, diagnostician, regulatory worker, and control official.

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## Humane Act Award

Dr. Paul Spencer (right), secretary of the Missouri Veterinary Medical Association, accepts the Humane Act Award for Myra Allena Lockhart of Mountain Grove, Mo., from Dr. A. R. Theobald, member of the Humane Act Award Committee, at the Cleveland meeting.

The award will be presented to Miss Lockhart at a banquet meeting of the Missouri Association this fall. (See the September 15 JOURNAL, p. 272, for the story about the winner of the Award.)

# Reports—Group Conferences Held During the AVMA Convention

## American Association of Veterinary Anatomists

The ninth annual meeting of the American Association of Veterinary Anatomists was held in two sessions. The first session in Columbus on August 16-17, 1957, was attended by 42 persons.

The program included a tour of the Ohio State University campus; workshops on differential staining and teaching methods; a survey of veterinary anatomy textbooks and guides; a symposium on the relation of comparative anatomy to veterinary anatomy; reports on research in progress; and a business meeting.

A second business meeting was held following the annual luncheon at the Cleveland Hotel in Cleveland, August 20.

The following officers were elected for the coming year: Drs. Alvin A. Price, president; M. Lois Calhoun, president-elect; and Clifford Westerfield, secretary. Dr. Ralph Kitchell was elected to represent the A.A.V.A. at a forthcoming international meeting of veterinary anatomists held in Freiburg, Germany, in September.—*M. Lois Calhoun, Secretary.*

## American Association of Veterinary Physiologists and Pharmacologists

Meetings were held at Ohio State University on Friday, Aug. 16, 1957. Cardiology and tissue culture were the main subjects under discussion.

A second session was held on August 17 at the Ohio Agricultural Experiment Station, Wooster, in conjunction with the American Association of Veterinary Bacteriologists. This latter meeting was a round-table discussion of basic factors in rumen dysfunction. Specialists in nutrition and biochemistry from the Ohio Agricultural Experiment Station joined in the program. At the business meeting in Cleveland, Dr. D. Detweiler and Dr. J. E. Martin of the Department of Veterinary Physiology, University of Pennsylvania, were elected president and secretary, respectively.—*W. D. Pounden, Secretary.*

## Conference of Veterinarians in Animal Disease Eradication Division

Representatives from field stations and the Washington office of the Animal Disease Eradication Division, ARS, met Aug. 21, 1957, in the Hotel Cleveland, with Dr. R. J. Anderson as chairman. Dr. C. D. Van Houweling, assistant administrator, ARS, welcomed the group.

Dr. Anderson, director of the Animal Disease Eradication Division, explained the necessity for maximum uniformity in the cooperative disease control and eradication programs in the various states.

Dr. F. J. Mulhern, chief of the Vesicular Ex-

anthema Eradication Section, discussed the importance of training area veterinarians who are in constant contact with practicing veterinarians, livestock owners, and industry representatives, and pointed out that personnel should be furnished the latest technical information so they may make the greatest possible contribution to the programs.

Dr. A. F. Ranney, chief of the Tuberculosis Eradication Division, discussed the various methods used in locating foci of infection and emphasized the importance of complete eradication.

Dr. C. K. Mingle, chief of the Brucellosis Eradication Section, in reporting on the accelerated brucellosis program, emphasized the importance of uniformity in declaring areas to be brucellosis-free. He stressed the importance of continuing to use the brucellosis ring test and to follow a program of calf vaccination against brucellosis until the disease has been entirely wiped out.

## Conference of Army and Air Force Veterinary Officers

The conference, which was held during the Ninety-Fourth Annual Meeting of the AVMA, convened on the evening of Aug. 21, 1957. There were 64 veterinary officers present.

Brigadier General J. A. McCallam (ret.) welcomed the group and Brig. Gen. Wayne O. Kester, U.S.A.F. (V.C.), and Brig. Gen. Elmer Young, U.S.A. (V.C.), commented on items of interest which were pertinent to military veterinary activities.

General Young acted as chairman of the meeting and presented the following speakers and their subjects:

Colonel H. R. Lancaster, U.S.A. (V.C.)—Inspection Activities in Europe; Lt. Col. A. A. Taylor, U.S.A.F. (V.C.)—Aspects of Flight Feeding; Lt. Col. B. F. Trum, U.S.A. (V.C.)—Aspects of Radiation Biology; and Major Dan Hightower, U.S.A. (V.C.)—Radiation Sterilization of Food.—*M. A. Clark. Office of the Surgeon General.*

## American Veterinary Exhibitors' Association

The annual banquet and business session of the American Veterinary Exhibitors' Association was held Aug. 18, 1957, in the Hotel Cleveland.

The guests of honor were Gen. Wayne O. Kester, president of the AVMA, and Dr. J. G. Hardenbergh, AVMA executive secretary. In addition to door prizes for veterinarians and their wives presented at the President's Reception on Wednesday night, the Exhibitors donated $150 to the AVMA Research Fund, the largest amount so far donated by them.

Among other projects planned by the Exhibitors Association for the coming year are the publication and distribution of a mimeographed booklet giving the recommendations and suggestions of the exhibitors to various state veterinarians for closer coordination and cooperation between the suppliers and the veterinarians at their meetings.

New officers of the association are; Mr. D. M. Nicholson, Nicholson Mfg. Co., president; Dr. J. D. Fortenberry, Haver-Lockhart, Laboratories, vice-president; Mr. Roy Connor, Schering Corp., secretary-treasurer.

Advisory trustees are: Mr. C. M. McCallister, Jensen-Salsbery Laboratories, and Dr. Carl J. Norden, Jr., Norden Laboratories. The newly elected members of the executive committee are: Mr. John O. Gwin, Armour Laboratories, and Dr. J. M. Fell, Warner-Chilcott Laboratories.—*D. M. Nicholson, President.*

## American Animal Hospital Association

The American Animal Hospital Association met in semiannual session during the AVMA convention in Cleveland on Aug. 21, 1957, at a luncheon meeting. Seventy-eight members were present. President Joseph A. S. Millar, Deal, N. J., reported on his program for the coming year and invited the group to attend the forthcoming annual meeting to be held in Chicago at the Drake Hotel, April 23-26, 1958. This will be the twenty-fifth anniversary of the founding of the association. The founders will be honored at a banquet and other special activities are planned for the meeting.—*Wayne H. Riser, Secretary.*

## American Association of Veterinary Nutritionists

The annual meeting of the American Association of Veterinary Nutritionists met at the Hotel Cleveland Aug. 19, 1957. The meeting was called to order by President M. Erdheim. Approximately 45 charter members were in attendance.

The first item on the program was a talk by Dr. R. R. Spitzer, executive vice-president, Murphy Products Company, Burlington, Wis., and immediate past-chairman of the nutrition council of American Feed Manufacturers Association. Dr. Spitzer used slides effectively to illustrate the challenge which faces veterinarians and nutritionists in helping livestock producers supply meat, milk, poultry, and eggs for an ever-increasing number of dinner plates at competitive prices. He pointed out that more than half of the calls made by veterinarians are for conditions which are not infectious, and that many of these involve nutrition.

The membership committee reported 90 members of the American Veterinary Medical Association have filed applications, and these were accepted as charter members. The committee urged that every effort be made to keep A.A.V.N. predominantly an organization of practicing veterinarians.

The publications committee reported that members have prepared eight manuscripts and numerous reviews and abstracts, which have been relayed to editors for publication.

The public relations committee reported that the

list of medicating agents permitted as feed additives will be completed shortly, and that this list will be published as a section of the 1958 edition of *Veterinary Encyclopedia* and *Therapeutic Index*. Reprints of this section will be available.

Nebraska has taken the lead at the state level, by appointing a committee on nutrition: half of the members are members of the American Veterinary Medical Association; the other half are members of the Feed Manufacturers Association. It was agreed that this is an excellent example which should operate effectively in all states and in district associations.

A need exists for information regarding the compatibility of feed additives and medicating agents in finished feeds—vitamins, minerals, antibiotics, vermifuges, coccidiostats, et cetera. The nutrition council of the American Feed Manufacturers Association has asked its quality control committee to study the need and to recommend ways and means of approaching the problem. Anyone having information of this nature is asked to send it to the chairman of the committee, Dr. Leonard Dansky, Box 549, Augusta, Maine.

The officers elected for the coming year are: Drs. R. E. Lubbehusen, president; J. W. Cunkelman, president-elect; R. C. Klussendorf, secretary-treasurer.

All members are urged to submit suggestions immediately for papers which should be presented at the AVMA meeting in Philadelphia in 1958 or which should be published. If the person offering the suggestion wishes to prepare the paper, please so state. If not, please name a person qualified to do so.—*R. C. Klussendorf, Secretary-Treasurer.*

## Fertility Conference

About 30 members attended the fertility conference on the evening of Aug. 20, 1957, in the Cleveland Hotel. Dr. E. A. Woelffer of Wisconsin gave a report for the Committee on Reproduction and Artificial Insemination in the absence of the chairman, Dr. David Bartlett of Chicago.

The committee report was followed by questions and discussion of infertility problems.—*E. A. Woelffer, Oconomowoc, Wis.*

## Diagnostic Laboratory Workers

An organizational meeting of diagnostic laboratory workers was held Aug. 18, 1957, with 32 persons representing 19 states, Canada, and Hawaii, in attendance. Dr. Paul C. Bennett, Iowa, and Dr. William L. Sippel, Florida, were elected chairman and secretary, respectively.

A general discussion of objectives, meeting times and locations, and methods of exchanging information between laboratories led to the appointment of a committee to make a further study of the suggestions presented. Dr. Joseph W. Branson, Mississippi, was named chairman of the committee, with Drs. E. P. Pope, Wisconsin; John Bentick, New York; W. W. Worchester, California; Jim Tucker, Wyoming; W. B. Gross, Virginia; J. E. Williams, U.S.D.A.; William L. Sippel, Florida; and Paul C. Bennett, Iowa, as other members.

Plans were made to hold another open meeting at the time of the next annual meeting of the U. S. Livestock Sanitary Association, at which the study committee will present recommendations for action by the group.—*Paul C. Bennett, Secretary.*

Scientific and Commercial Exhibit Space at the

## American College of Veterinary Pathologists

The American College of Veterinary Pathologists held an open meeting at Cleveland on Aug. 19, 1957, in the Cleveland Hotel. The meeting was divided into two segments, the first being combined with the AVMA editor's conference which was followed by a seminar on photography.

During the joint conference of pathologists and editors, introductory comments made by Drs. W. A. Aitken and T. C. Jones gave impetus to a lively discussion of means of improving illustrations in veterinary journals. Dr. Aitken invited criticism of illustrations in the AVMA *Journals* and asked for suggestions for their improvement. Dr. Jones urged all authors to be critical of illustrations submitted for publication and to insist upon illustrations of high quality that would not only be informative and attractive but would also reflect credit upon the JOURNAL, the author, and the profession. Only after high standards are attained in the photographs submitted can improvement in paper, printing, or engraving become effective. The seminar following this conference was directed toward the technical details necessary to gain acceptable standards for illustrations.

Mr. Julius Halsman, chief of the Division of Pathology, Armed Forces Institute of Pathology, gave two illustrated lectures on the "Science and Art of Gross Pathology" and "Photomicrography." Mr. Halsman described equipment and techniques best suited to production of good quality photographs and photomicrographs. He pointed out the pitfalls in color photography and demonstrated distractions and actual hallucinations produced by improper use of color backgrounds. A question and discussion period followed each of Mr. Halsman's talks.

Mr. William Drake, Department of Photography, Ohio State University, told the group how to prepare movies for use in education and TV. He demonstrated several examples of diseased states in animals which are most clearly and accurately portrayed by motion pictures. Mr. Drake particularly emphasized the preparation of the script or outline and the selection of equipment.

The program and local arrangements for the seminar were made by Dr. Vance L. Sanger of Wooster, Ohio, who also presided. Closing remarks were made by Dr. C. R. Cole of Columbus, Ohio, president of the American College of Veterinary Pathologists.—*T. C. Jones, Secretary-Treasurer.*

## American Board of Laboratory Animal Medicine

The first annual meeting of the American Board of Laboratory Animal Medicine was held in the Cleveland Hotel on Aug. 18, 1957, with 39 veterinarians in attendance.

Dr. T. W. Harris, G. D. Searle and Co., described a nephritic syndrome of rats commonly observed by him at necropsy, and the possible etiology and significance of this condition was discussed. Dr. W. C. Dolowy and Mr. A. L. Hesse, University of Illinois professional colleges, described the methods they used to detect pulmonary tuberculosis in laboratory monkeys. Chest roentgenography as used by them compared favorably with the intrapalpebral test and necropsy findings.

The increased breeding efficiency of a colony of laboratory rats following the study of Papanic-

AVMA Cleveland Meeting in the Public Auditorium

## Guests at the Cleveland Meeting

Dr. Walter Moynihan (left), Ottawa, Ont., official delegate of the Canadian Veterinary Medical Association, and Dr. J. K. Walley, Cheshire, England, official delegate of the British Veterinary Association.

olaou-stained vaginal smears and properly timed coitus was reported by Dr. T. B. Clarkson, Wake Forest College. The advantages and disadvantages of the administration of tranquilizing drugs to several species of laboratory animals were discussed by Dr. W. I. Gay and Dr. C. W. McPherson, the National Institutes of Health. Dr. N. R. Brewer, University of Chicago, presented a progress report on his studies of the treatment of dogs infected with tapeworms.

A business meeting, followed by a meeting of the Council, was held after the scientific session.—*Robert J. Flynn, Secretary-Treasurer.*

## Industrial Veterinarians Association

The Industrial Veterinarians Association annual meeting was held Aug. 19, 1957, at the Cleveland Hotel. President Robert McCarty welcomed guests and members and presided at a brief business session.

Dr. R. W. Fogelman, manager, western division of Hazelton Laboratories, presented a paper entitled "Selected Highlights of the Biological Evaluation and the Registration of Pesticides."

Another paper, "When Agriculture Changes, Veterinary Medicine Must," was presented by Dr. Mark Welsh, director, Veterinary Professional Service Department, American Cyanamid Co.

Dr. Robert McCarty remarked that the objectives of the I.V.A. as set forth in the constitution, "to advance the interest of veterinary science in industry," could or should include: the advancement of veterinary science in industry; the advancement of the interest of industry in veterinary science; the contribution of industry for the advancement of veterinary science.

The I.V.A officers for the year 1957-1958 are: Drs. J. C. Siegrist, Schering Corp., president; Joseph M. Fell, Warner-Chilcott Laboratories, president-elect; Bernard LaSalle, Arnold Laboratories, secretary; and Gene Eads, Parke Davis & Co., treasurer.

The executive board members for the coming year are: Drs. R. T. McCarty, chairman; J. Siegrist, Joseph M. Fell, John Cunkelman, Swift & Co.; and Harold Roberts, Eaton Laboratories.

Veterinarians associated with industry are invited to contact the secretary for copies of the I.V.A. constitution and for applications for membership.—*Bernard LaSalle, Secretary.*

## American Association of Extension Veterinarians

The American Association of Extension Veterinarians met in the Hotel Cleveland, Aug. 14, 1957. Fourteen men, representing 12 states and the Federal Extension Service, appraised the proposed constitution. A committee was appointed to write up a job description for use by the state extension staffs.

The officers elected were: Drs. C. M. Patterson, Texas, president; Samuel B. Guss, Pennsylvania, vice-president; and John B. Herrick, Iowa, Secretary.

The theme of the educational part of the program was "What Can We Teach About Mastitis and the Antibiotic Problem?" Presentations on this subject were made by Mr. Richard Burleston, federal dairy extension specialist; Dr. Kenneth McKay, California extension veterinarian; and Dr. John Herrick, Iowa extension veterinarian.

A round-table discussion and exchange of mastitis publications furnished material for educational use.—*Samuel B. Guss, Vice-President.*

## Zoo Veterinarians

The eleventh annual meeting of the "zoo veterinarians" was held Aug. 19, 1957. Dr. Anton Allen, Department of Pathology, University of Wisconsin, presented a report on the necropsy findings on 768 Rhesus monkeys at the National Institutes of Health. Dr. Robert Vesper of Columbus, Ohio, presented a progress report on the birth and raising of a baby gorilla at the Columbus Zoo.

The following morning the group was taken on a conducted tour of the Cleveland Zoo before it opened for visitors.

The "zoo veterinarians," an unofficial group, are employed by various zoos in the United States and Canada. Each year since 1946, the group has con-

vened during the annual conventions of the AVMA to present case reports, papers, and general discussions dealing with medical problems of wild animals.

The aims and objectives are to inform those attending the meetings as to new developments in veterinary medicine applicable to wild animals, to publish and disseminate information on the subject, and to encourage the use of veterinary service in all zoos.

Full-time staff veterinarians are employed by the San Diego, Brookfield, Detroit, Toledo, New York, Staten Island, and Washington, D. C. zoos. The balance of the membership is made up of veterinarians employed by zoos on a consultant basis.—*Patricia O'Connor, Secretary.*

## American Board of Veterinary Public Health

The American Board of Veterinary Public Health met on Aug. 19, 1957, at the Cleveland Hotel. President Raymond Helvig called the meeting to order with 21 members in attendance. Dr. Stanley Hendricks, Iowa, was appointed to serve as liaison with the AVMA press office.

The reports of the committees on education and public relations were heard and accepted with minor modifications. It was urged that the AVMA brochure, "Veterinary Medicine as a Career," be reviewed and revised to include an accurate depiction of the responsibility of the veterinary profession to the public health.

There was considerable discussion regarding the best manner to approach both internal and external public relations and how the board could obtain maximum benefits for the expenditure of its funds.

A progress report of the Institute on Veterinary Public Health Practice, planned by the University of Michigan, was presented by Dr. Martin D. Baum. This subject was discussed in detail with general agreement that the Institute should be supported.—*Martin D. Baum, Secretary-Treasurer.*

## National Association of Federal Veterinarians

The unofficial meeting of the National Association of Federal Veterinarians was held in the Cleveland Hotel on Aug. 19, 1957, in conjunction with the Ninety-Fourth Annual Meeting of the AVMA.

This was an interesting meeting, attended by 59 members from 31 states and the District of Columbia. The secretary-treasurer reported on receipts and expenditures and membership. Dr. F. L. Herchenroeder, president, addressed the members and the meeting was opened for suggestions on association activities for presentation to the executive committee and the membership at our next annual convention in November in St. Louis.

By almost a unanimous showing of hands, the members requested the executive committee of the N.A.F.V. to make an investigation of the possibilities of spending some money on a public relations program to acquaint the public with the scope and importance of veterinarians employed by the federal government. It was suggested that sound track films from various agencies of the federal government could be secured, cut, and made into an attractive film which would represent the various agencies employing veterinarians. A film of this character could be made available for resident secretaries and members in every state and shown to groups interested in educational and interesting information. The group also agreed a few thousand dollars at least could be spent from our treasury through a well-planned program to improve public relations for federal veterinarians.

It is understood that our president and secretary-treasurer will start activities through the executive committee at an early date in order to be able to present a proposal at our next annual convention. —*L. T. Hopkins, Secretary-Treasurer.*

## Association of State Public Health Veterinarians

The Association met and discussed the possibility of initiating action to result in a complete review of poultry and meat inspection procedures in the United States. It was the feeling of the members that poultry and meat inspection procedures should be reviewed in the light of communicable diseases to man. This action was favorably received and this Association will go forward with it in the near future.

Other matters discussed at the association meeting involved the propriety of the use of antibiotic feed in the prevention of diseases transmissible to man without due regard to the controls and adequacy of the feeding methods.

Report was made on the new poultry production inspection act and the group expressed concern that the act might be construed to be more of an economic protective measure than a human health measure unless properly administered.

The following officers were elected: Drs. Ernest J. Witte, Harrisburg, Pa., president; E. R. Price, Jefferson City, Mo., vice-president; Oscar Sussman, Trenton, N. J., secretary-treasurer; Ronald L. Hectorne, Louisville, Ky., and Stanley L. Hendricks, Des Moines, Iowa, members of the executive committee.—*Oscar Sussman, Secretary-Treasurer.*

## Association of Deans of American Colleges of Veterinary Medicine

The Association of Deans of American Colleges of Veterinary Medicine met on Aug. 18, 1957, with all but one of the schools represented. Purdue University was represented at the meeting for the first time.

Members heard reports on the following subjects: a proposed Pan American seminar to be held in 1959 at Kansas City; federal accreditation of veterinarians; teaching the history of public relations in veterinary medicine in the schools, and Asiatic influenza.

Among other subjects considered were: nomina-

tions to the National Board of Veterinary Medical Examiners in anatomy, bacteriology, and physiology; revision of the curriculum; additional funds for basic research; federal aid for buildings at veterinary medical schools; accreditation of schools; and a fund for research on diseases of dogs, cats, fish, and birds.

The officers were reelected. They are: Drs. E. E. Leasure, president; W. A. Hagan, vice-president; and A. H. Groth, secretary.—*A. H. Groth, Secretary.*

## Conference of Editors

The first part of the editors' meeting was held jointly with the American College of Veterinary Pathologists on Monday evening, Aug. 19, 1957, at the Cleveland Hotel. The joint meeting was arranged so that the reproduction of illustrations in the AVMA *Journals* could be discussed by both groups. It was concluded that the first requirement for satisfactory reproductions is the best possible original copy (glossy prints, India ink drawings, charts, graphs).

During the latter part of the editors' conference, Dr. S. F. Scheidy led a discussion on the preferred method of writing trademarked drugs in AVMA *Journals*, and Dr. W. A. Aitken commented on the correct use of veterinary medical words and phrases, which led to an interesting discussion.—*Helen S. Bayless, Assistant Editor, AVMA Publications.*

## American Association of Avian Pathologists

In conjunction with the 1957 AVMA meeting in Cleveland, a meeting was held to discuss the formation of an American Association of Avian Pathologists. The meeting was attended by approximately 40 veterinarians interested in poultry diseases. After an informal discussion, the group elected Dr. L. C. Grumbles, College Station, Texas, and Dr. H. W. Chute, Orono, Maine, as chairman and secretary, respectively, of the temporary organization for the coming year.

An organizational committee was appointed to finalize the constitution and bylaws and to work out other details of the organization. The following were appointed to this committee: Drs. Henry Van Roekel, chairman, Amherst, Mass.; B. S. Pomeroy, St. Paul, Minn.; J. P. Delaplane, College Station, Texas; J. F. Sullivan, Beltsville, Md.; S. B. Hitchner, Madison, Wis.; A. S. Rosenwald, Davis, Calif.—*L. C. Grumbles, Secretary.*

## Conference of Public Health Veterinarians

An informal meeting was called to order Sunday evening, August 18, by President Ernest S. Tierkel. Plans were discussed for the regular annual meeting to be held in conjunction with the American Public Health Association convention in Cleveland the week of Nov. 11, 1957. There will be three technical sessions of the conference with ten papers and two panel discussions covering current topics in zoonoses and general veterinary public

The Joint Meeting of Editors and Veterinary Pathologists During the AVMA Convention in Cleveland

health; a dinner session; and a business session. Professor Harold Burrow, professor of Veterinary Public Health, Royal Veterinary College (University of London) will be an honored guest of the conference.

A progress report was given by Dr. Oscar Sussman on the status of the new federal poultry legislation which has since been passed by Congress and signed by the President.

Other discussions included the proposed reorganization of the AVMA, and this was outlined in detail by Dr. T. Lloyd Jones. Of particular interest to the group were Dr. Jones' remarks regarding the creation of a council on public health and regulatory veterinary medicine. In the remainder of the session, Dr. Robert Hingson, professor of Anesthesiology, Western Reserve Medical School, presented an interesting talk on the development and experience with the Press-O-Jet inoculator and its application in immunization programs. Members of the conference were interested in the possible application of the Press-O-Jet inoculator for use in animals.—*Robert D. Courter, Secretary.*

## National Board of Veterinary Medical Examiners

The annual meeting of the National Board of Veterinary Medical Examiners was held at the Hotel Cleveland on the afternoon of Aug. 21, 1957, president W. T. S. Thorp presiding.

Sixteen of the 30 members of the Board were present or represented by proxies. Several nonmember representatives of state examining boards were also present for part of the meeting.

Reports were presented on the work of the Examination Committee which meets each year with representatives of the Professional Examination Service, New York, for the purpose of revising examination items or questions; on the current and prospective use of the National Board-P.E.S. examinations by state examining boards; on comparison of "raw scores" made by candidates taking the examinations in 1957; and other aspects of the examination service provided by the National Board-P.E.S. examination.

Fifteen boards used the objective tests in 1957, a total of 680 candidates being so examined. This is an increase of four boards and 82 candidates as compared to the 1956 figures. Ten other state boards have expressed interest in the use of the National Board-P.E.S. tests, some pending necessary revision of their practice acts.

Drs. W. T. S. Thorp was elected president and J. G. Hardenbergh secretary of the board for the ensuing year. Drs. A. E. Coombs, J. O. Knowles, P. O. Olson, R. E. Rebrassier, and J. H. Steele were elected as members of the executive committee.—*J. G. Hardenbergh, Secretary.*

## State and Federal Veterinarians

Representatives of state and the federal departments of agriculture met jointly on Aug. 21, 1957, in the Hotel Cleveland.

Dr. John G. Milligan, state veterinarian of Alabama, reported on the hog cholera eradication program in Alabama, stressing the elimination of live virus in immunizing swine against the disease as the first step toward complete eradication.

Dr. James E. Stuart, chief, Division of Animal Industry, California Department of Agriculture, reported on recent outbreaks of scrapie in California flocks. Emphasis was placed on regulations governing the movement of possibly exposed sheep and of infected flocks to slaughtering establishments.

Dr. M. N. Riemenschneider, state veterinarian of Oklahoma, presented a progress report of recent outbreaks of anthrax in northeastern Oklahoma. Vaccinating with nonencapsulated spore vaccine has been successful. The outbreaks followed unusual climatic conditions where the disease had existed previously.

Dr. W. A. Moynihan, office of the veterinary director general, Health of Animals Division, Canadian Department of Agriculture, discussed methods of facilitating health certification for animals moving between Canada and the United States. He also explained Canada's brucellosis eradication program.

Dr. C. H. Pals, associate director, Meat Inspection Division, ARS, discussed methods by which state and federal inspection could be coordinated.

Dr. C. K. Mingle, chief of the Brucellosis Eradication Section, ARS, reported on brucellosis eradication during the three years of the accelerated program, pointing out that the percentage of reactors moving to slaughter has increased phenomenally and that eight states and 735 counties have achieved certified status.

Dr. Robert J. Anderson, director of the Animal Disease Eradication Division, ARS, reported on federal regulation governing interstate movement of cattle as it relates to brucellosis. He said reports from the states indicate the regulation has been beneficial in obtaining cooperation in the accelerated brucellosis program from the cattle industry.

A general discussion of livestock diseases and common problems followed the reports.

The meeting was presided over by Co-Chairmen C. D. Van Houweling, assistant administrator, ARS, Washington, D.C., and C. L. Campbell, president of the National Assembly of Chief Livestock Sanitary Officials.—*M. M. Riemenschneider, Secretary, National Assembly Chief Livestock Sanitary Officials.*

# Clinical Data

## Leptospirosis Vaccination Studies in Cattle, Swine, Sheep, and Horses

S. F. SCHEIDY, V.M.D.

*Drexel Hill, Pennsylvania*

THE ECONOMIC IMPORTANCE of leptospirosis to the livestock industry in this country is well established. Infections due to *Leptospira pomona* appear to be the most important, especially in cattle and swine, and possibly in sheep and horses. Considerable laboratory and clinical data have been published regarding the incidence of leptospirosis in cattle and swine. Infections due to *Leptospira icterohaemorrhagiae* and *Leptospira canicola* have long been recognized in dogs.

Methods for preventing infection in livestock are of primary concern to the livestock owner and the veterinarian. Accumulating data would seem to support the view that vaccination of susceptible animals is a practical and effective measure in the control of this disease. The use of a chicken embryo vaccine has been reported.[11,12] A soluble Leptospira bacterin has been used in cattle.[7] The present report summarizes a number of experimental and clinical studies conducted in four species of farm animals with a bacterin prepared in a modified Stuart's medium.[2] It was tested in guinea pigs for potency. The antibody titer of the serum was determined, in most instances, by means of the microscopic agglutination-lysis test.

### CATTLE EXPERIMENTS

A single 5-ml. dose of the bacterin produced a significant rise in the antibody blood titer in 31 of a group of 32 young cattle within one week after vaccination.[2] Five of these cattle, as well as 5 unvaccinated controls, were challenged three weeks later with live cultures of *L. pomona*. The blood titers of the vaccinated animals did not rise significantly. On the other hand, there was a sharp rise in blood titer in the unvaccinated controls. When 5 vaccinated cattle were challenged six months later, their blood titers remained low after the exposure.

In a similar experiment with young cattle, some were challenged 12 months and others approximately 14 months following vaccination.[6] Again the vaccinated animals failed to show a significant rise in blood titer, although a marked rise in titer, as well as other signs of infection, appeared in the unvaccinated controls. These results would seem to indicate that a single dose of the bacterin may protect cattle for at least one year.

Revaccination of cattle for increased or prolonged protection, as well as safety, has also received attention. When a small number of cattle were given a second dose of the bacterin, 34 days after the initial dose, no serious reactions were elicited.[1]

In a much larger series,[10] revaccination of 650 cattle approximately six months following the initial vaccination was accomplished without a single animal showing any evidence of an untoward reaction. These trials would seem to support the view that Leptospira bacterin will not cause anaphylactic or anaphylactoid reactions in cattle.

In a limited study[9] with young dairy cattle vaccinated as calves with *Brucella abortus* (strain 19) live vaccine, there was no indication of a rise in Brucella agglutinins following vaccination with *L. pomona* bacterin ten to 34 months after the Brucella vaccination. This would seem to be of considerable practical importance since many young cattle are subjected to blood tests before shipping.

### SWINE EXPERIMENTS

The chief sign of leptospirosis in swine is abortion. Aborted pigs are usually nonviable.

In a comparison of pigs challenged 48 days after subcutaneous and intramuscular vaccination with unvaccinated controls,[5] the serological data indicated that the blood titers of vaccinated pigs were significantly lower than titers in the control group. The vaccinated pigs showed no clinical signs of leptospirosis while 4 of 5 unvaccinated controls exhibited a thermal

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reaction, leptospiremia, leptospiruria, and interstitial nephritis.

In an interesting study in which the efficiency of the bacterin was measured by its effect upon pregnancy in gilts,[4] two different strains of *L. pomona* were used. Undiluted whole culture bacterins were prepared from each strain and 5-ml. doses administered. Maturing gilts were vaccinated just before breeding and challenged by conjunctival instillation with live cultures of *L. pomona* at approximately midgestation. One group of 10 vaccinated gilts farrowed 89 pigs of which 88 (98.9%) were healthy and viable. Of 71 pigs farrowed by another group of 10 vaccinated gilts, 68 (95.7%) were also viable. By contrast, an unvaccinated group of 7 gilts farrowed 55 pigs of which 27 (49.1%) were viable, 38.2 per cent were dead, and 12.7 per cent were weak. The practical significance of their experiment can be appreciated because results were measured by performance (reproduction) rather than by estimation of immunity based on serological observations only.

In another experiment,[14] 19 recently weaned pigs were vaccinated with a 5-ml. dose of bacterin and 10 were revaccinated six months later. The initial serological response to a 5-ml. dose of the bacterin was essentially identical to that previously reported.[5] The 10 shoats responded to a second dose of the bacterin six months later by a sharp rise in blood titer. The titers at four weeks following revaccination were considerably higher than those observed following the initial vaccination. There was a gradual reduction in the titer during the following eight weeks. There was no evidence of adverse effect in any of the shoats following a second dose of the bacterin. None of these animals was challenged with live cultures of Leptospira, since these particular experiments were expressly designed to obtain information regarding safety and serological response to a second dose of the bacterin.

## SHEEP STUDIES

An experiment[13] was conducted in young crossbred (Cheviot-Hampshire-Merino) ewes to determine their response to a single 5-ml. subcutaneous dose of *L. pomona* bacterin. They were vaccinated at approximately 10 months of age. Most of them had been bred.

Blood samples collected before vaccination were negative to the agglutination-lysis test in dilutions of 1:10 or higher. In samples collected two weeks subsequent to vaccination, and at intervals for several months thereafter, titers ranged from 1:50 to 1:250.

Eighty-two days after vaccination, 5 vaccinated and 5 unvaccinated control sheep were isolated and challenged with 2 ml. of virulent blood collected from a previously infected guinea pig (strain M.L.S. was used). Their body temperatures were recorded daily for two weeks. Of the 5 unvaccinated controls, 4 showed a definite rise in temperature within three to six days following challenge. One ewe died 21 days following challenge. On necropsy, a degenerated fetus *in utero*, as well as definite signs of toxemia, were found.

The serological response to the challenge dose of virulent blood in unvaccinated ewes was rapid and marked. Blood titers ranging from 1:250 to 1:31,250 were present within two weeks after challenge and these were maintained during the following four weeks. There was no significant change in the serological response of the vaccinated ewes; a few showed a slight rise in titer in two weekly samples following challenge. The response to Leptospira bacterin in sheep would seem to be similar to that obtained in cattle, and is apparently sufficient to protect against infection.

Clinical leptospirosis in two flocks of sheep has been reported.[6] In each flock, several deaths occurred. The diagnosis of leptospirosis was based on clinical signs and serological evidence. All ewes in both flocks were vaccinated. No additional cases developed during the following year.

## HORSE STUDIES

Published reports indicating that leptospirosis may be a problem in horses have raised questions about the use of Leptospira bacterin in this species.

Several studies in horses have been conducted. The serological response to 5-ml. and 10-ml. doses of *L. pomona* bacterin in horses[3] apparently was similar to that elicited in cattle. However, the larger dose (10 ml.) of bacterin produced an initial antibody titer which was higher and lasted longer than that from the smaller dose (5 ml.).

In another limited study, on the effect of revaccination of horses with *L. pomona* bacterin,[1] no serious adverse reactions

were observed in horses vaccinated with 5-ml. doses and revaccinated with the same amount of bacterin 34 days later. However, a more pronounced local reaction was observed in horses than in cattle, sheep, or swine. The localized swellings disappeared within a few days.

## SUMMARY

The use of *Leptospira pomona* bacterin in cattle, swine, sheep, and horses is reviewed.

Serological evidence indicates that the bacterin induces antibody formation. Challenge experiments evaluated according to serological response and absence of clinical signs indicate that vaccinated cattle, sheep, and swine are protected against leptospirosis.

Trials conducted in cattle, swine, and horses indicate that revaccination is a safe procedure.

Vaccination with *L. pomona* bacterin does not appear to elicit an anamnestic response in young cattle previously vaccinated with *Brucella abortus* (strain 19).

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*Acetonemia in the Cow.*—In cases of bovine acetonemia, large doses of cortical steroid, a stimulative form of therapy, may well prove dangerous if there is marked exhaustion, since it subjects the animal to ever greater stress. Acetonemia is not due to a deficiency of any single substance but to combined factors. Practical observations indicate that the causes may be more associated with functional lesions in the rumen, reticulum, and omasum, and disorders related to intermediate metabolism, than to hormone or mineral deficiencies. When a drastic remedy is used, it is advisable to administer glucose intravenously or glucose precursors by mouth. In many apparently improved animals, excretions of ketones in the urine continues. Milk production may rise and the appetite may improve but the animal continues to lose weight rapidly. The initial digestive disorder continues and the cow endeavors to counteract this by excessive glucogenesis from her reserves. Complete recovery can not be expected until a high percentage of the reserve fat has been converted into calories, or the cow is put out to pasture with complete modification of her nutritional intake and daily routine.—*Vet. Bull. (July, 1957): Item 2174.*

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*Bovine Ocular Carcinoma and Eyelid Pigmentation.*—In a study of 842 Hereford cattle, in Texas and Oklahoma (1 herd of purebred and 2 of grade Hereford cattle), including 338 animals with lesions, it was concluded that there is a real association between a decreasing amount of pigmentation on the eyelid and lesions on the skin but no significant association between eyelid pigmentation and lesions on the eyeball or nictitating membrane. Breeding for an increased amount of pigmentation on the skin of the lid should, therefore, reduce the number of lesions on the lids only. Since lesions on the eyelid are the least frequent, it would probably be more effective to select for increased resistance to cancer.—*J. Anim. Sci. (Aug., 1957): 739.*

# The Effect of Divided Dosage on the Anthelmintic Efficiency of Phenothiazine in Lambs

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PHENOTHIAZINE administered therapeutically to sheep and cattle has usually been given as a single dose in a drench, bolus, or capsule. In an attempt to simplify the procedure and avoid individual handling of animals, phenothiazine has been mixed with various feeds, mineral supplements, flavorings, and other additives such as carob flour.[5] These mixtures are usually intended to provide a therapeutic dose to be consumed in one day. However, sheep and cattle often will require three to five days to ingest this full dose. Consequently, it has been recommended that the dose be divided into two, three, or four equal portions to be fed on successive days. This method is in common use in the treatment of horses for strongyles,[6] apparently the primary reason being to avoid reactions from intoxication.

Small repeated doses of phenothiazine exert a marked inhibitory effect on ovogenesis in many species of nematodes; however, at the usual prophylactic levels of 1 to 4 Gm. daily for ruminants, there is very little direct effect on the worms. It would seem reasonable, therefore, that division of a therapeutic dose of phenothiazine might markedly impair its anthelmintic efficiency. Little conclusive experimental evidence is available on this point. However, daily doses of 1 or 2 Gm. of phenothiazine to weanling and adult sheep were effective against *Haemonchus contortus* and *Oesophagostomum columbianum*, but not against Trichostrongylus spp.[2] In rats artificially infected with *Heterakis spumosa*, 100 mg. of phenothiazine given as nine doses over a period of four and one-half days reduced the anthelmintic efficiency by nearly 60 per cent as compared with a single dose.[7]

This paper describes the results of an experiment to determine specifically the effect of administration of divided doses of phenothiazine to lambs.

## MATERIALS AND METHODS

Forty-five range lambs, approximately 6 months old and weighing 40 lb., were placed in a drylot and fed alfalfa hay for six weeks. Fecal worm egg counts were made five times during this period using a modified McMaster technique.[3,8] On the basis of average egg count, the lambs were allotted to five equal groups, with each group having essentially the same average egg count and presumably the same average worm burden. Four groups were then treated with 25 Gm. of phenothiazine given as a single dose or divided into three, five, or seven daily doses. The fifth group served as untreated controls (table 1).

TABLE 1—Average Worm Collections from Lambs and Calculated Anthelmintic Efficiency

| Group | Treatment | Small intestine | Efficiency (%) | Abomasum | Efficiency (%) | Total | Combined efficiency |
|---|---|---|---|---|---|---|---|
| 1 | 3.6 Gm./day (7 days) | 1,346 | 0 | 611 | 4 | 1,957 | 0 |
| 2 | 5.0 Gm./day (5 days) | 731 | 43 | 569 | 10 | 1,300 | 32 |
| 3 | 8.3 Gm./day (3 days) | 798 | 33 | 184 | 71 | 982 | 46 |
| 4 | 25.0 Gm./day (1 day ) | 552 | 54 | 141 | 78 | 693 | 65 |
| 5 | Untreated | 1,198 | — | 634 | — | 1,832 | — |

The phenothiazine used was of commercial origin, National Formulary grade, green or nonpurified, and had an average particle diameter of 10.8 $\mu$ as determined by an air permeation technique. The drug was given in hard gelatin capsules to assure accurate dosage. Fecal worm egg counts were made at frequent intervals up to the day before slaughter.

Seven days after the treatment ended, the lambs were slaughtered and total worm collections were made separately from the abomasums and small intestines by methods previously described.[1] Worm counts were made by a dilution technique and

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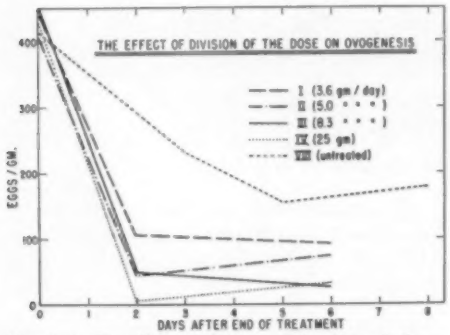
Acknowledgment is made of the technical assistance of Fay Vance Williams.




Graph 1—The effect of division of the dose of phenothiazine on ovogenesis of parasites in lambs.

representative samples of worms from each organ and group were identified. The counts reported represent only Ostertagia, Trichostrongylus, and Nematodirus. Since Strongyloides is not removed by phenothiazine,[4] it was omitted from the calculations.

## EXPERIMENTAL RESULTS

All treatments markedly inhibited ovogenesis (graph 1). Egg production levels two days after completion of the treatment schedule appear to correlate approximately with the size of the daily dose. The apparent reduction in egg production in the untreated group can not be satisfactorily explained; as judged by subsequent worm counts, it was not due to a significant reduction in worm burden.

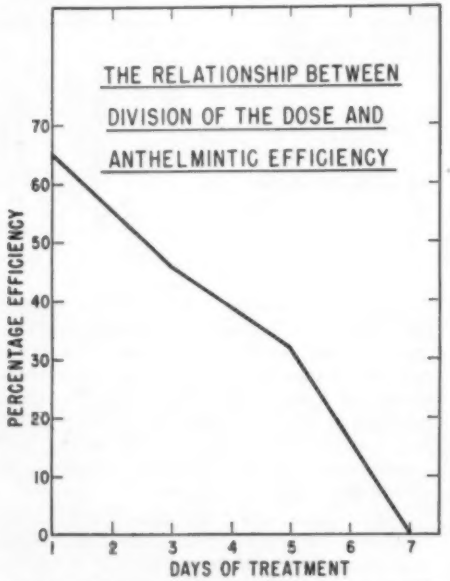
The data on average worm collections from the five groups of lambs are presented (table 1). The percentage efficiency for each treatment as compared with the untreated group was calculated from the formula:

$$\frac{\text{(av. of untreated group—av. of treated group)} \times 100}{\text{Av. of untreated group}}$$

Applying the "t" test to the combined worm counts from the abomasums and small intestines, it was found that the observed differences between the seven-day and five-day schedules could be expected to occur by chance between 2 and 5 per cent of the time. Analysis showed that the difference between the five-day and three-day treatments was insignificant. The differences between the one-day treatment and the other treatments was significant, with "P" values of 0.05 to 0.005.

If only the worm counts from the abomasums are considered, it is found that a three-day treatment schedule is about as effective as a one-day schedule. Division of the dose into five or seven parts resulted in negligible control of nematodes in the abomasum.

The effect of the various treatments on the worms in the small intestines is not as clear cut as in the abomasum. The seven-day treatment apparently did not reduce the worm burden. The one-, three-, and five-day treatments resulted in a low order of efficiency and somewhat erratic results. Analysis of these data indicates that the difference between the three- and five-day treatments could be expected to occur by chance 60 per cent of the time. The difference between the one-day and three-day schedules is significant at the 1 per cent level.




Graph 2—The relationship between division of the dose of phenothiazine and anthelmintic efficiency in lambs.

## DISCUSSION

It is apparent from the results obtained in this experiment that there is an inverse relationship between division of the dose and the anthelmintic efficiency of phenothiazine in lambs (graph 2). On an average, the decrease in efficiency amounts to approximately 10 per cent for each day of treatment.

It should be emphasized that the dosage used in this trial was approximately *twice* the amount commonly recommended for

lambs. It is probable that a smaller dose would result in a significant decrease in anthelmintic efficiency.

These findings suggest that recommendations for division of the phenothiazine dose can not be supported if maximum therapeutic efficiency is to be attained.

## SUMMARY

Administration of a 25-Gm. dose of phenothiazine to lambs over periods of one, three, five, and seven days showed that anthelmintic efficiency was decreased in an essentially linear relationship. Anthelmintic efficiency dropped from 65 per cent, when the dose was given at one time, to zero when it was given in equal daily doses over a period of seven days.

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*Phenothiazine for Fattening Steers.*—Fecal samples were taken from 20, 950-lb. steers the day before they were given 60 Gm. of phenothiazine in a palatable feed. Feces were again collected at the end of the 120-day feeding period. One steer with 616 parasite ova per gram of feces at the beginning of the test had none at the end, but another steer which had 162 ova/Gm. initially had 450/Gm. at the end of the trial. The treated steers gained only 0.1 lb. per day more than control steers. There was no significant correlation between the ova count and the daily gain.—*Am. Feed. Mfgr. A. Nutr. Abstr., July, 1957.*

*Egg Transmission of Chronic Respiratory Disease.*—When the yolks of hen eggs were inoculated with pleuropneumonia-like organisms (PPLO) from an infected bird, the organisms died in infertile eggs in four to eight days when incubated at 37 C., but persisted in fertile eggs. PPLO were found in the respiratory tract of 1 of 6 chicks that hatched from eggs inoculated before incubation and from all of 4 chicks which survived after being inoculated as five-day embryos. PPLO were not recovered from any of 342 eggs laid after hens were exposed by intraperitoneal, intravenous, or intraoviduct injection, or with infected semen.—*B. W. Calnek and P. P. Levine in Avian Dis. (Aug., 1957): 208.*

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*Egg Transmission of Infectious Sinusitis of Turkeys.*—When eggs were obtained from a hatchery where poults 3 weeks old developed infectious sinusitis, *Mycoplasma gallinarum* was isolated from those which failed to hatch and from poults removed from the shell, but not from live poults after hatching. When eggs from an infected flock were obtained while fresh, and incubated, the organism was isolated from dead embryos but, with one exception, not from hatched poults. However, the disease developed in poults from these eggs when they were 2 to 3 weeks old.—*M. S. Hofstad in Avian Dis. (Aug., 1957): 165.*

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*Round Heart Disease in Chickens.*—The incidence of this condition, characterized by a rounded heart with a dimpled apex, and a dark liver, is on the increase in Britain. It has also been reported in Europe, in Canada, and in New York State. It usually affects pullets from 8 weeks to 1 year old. Of 216 affected flocks, 174 were on built-up litter, 31 were on range, and none were in laying batteries. The cause, which has not been determined, could be a deleterious substance in built-up litter but it is more probably an infective agent. Twice, the disease was induced in pullets by introducing litter from quarters previously used by affected birds. The interval between exposure and death (6 of 50 exposed birds) was 42 to 95 days. The behavior of the disease is not unlike that in neurolymphomatosis.—*J. E. Wilson in J. Comp. Path. (July, 1957): 239.*

# Canine Glaucoma. II.* Primary Classification

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THIS GENERAL CLASSIFICATION of glaucoma in dogs is made on the basis of 134 glaucomatous eyes in 92 dogs.

Simply stated, and for all practical purposes, glaucoma may be classified as: (*a*) primary—in which the abnormal elevation of intraocular pressure occurs without other antecedent intraocular disease; (*b*) secondary—in which the abnormal elevation of intraocular pressure occurs as a complication of some other disease or damage to the eye; and (*c*) congenital—in which the abnormal elevation of intraocular pressure occurs as a result of some developmental malformation of the eye.

Absolute glaucoma, or blindness, is the end stage in any glaucoma. It need not be included in any classification, nor is it possible to do so in many instances in the dog for reasons previously mentioned.[13]

## GENERAL CONSIDERATIONS

A diagnosis of primary glaucoma is made when there are no discernible secondary conditions within the eye which could lead to an increase in tension. In other words, the cause of the tension increase can not be definitely determined. In man, none of the many theories has adequately explained all cases of glaucoma. Two principal schools of thought or theories, the neurovascular and the mechanical, are proposed to explain the mechanism of primary glaucoma.[10]

1) *The Neurovascular Theory.*—This theory assumes that the disease results from an abnormality in the ocular circulation, which might occur on a local basis within the eye or as a consequence of a disturbance in the general circulatory system of the body as a whole. Contributing factors include disorders of the hypothalamic region, the autonomic nervous system, and the endocrine system.

2) *The Mechanical Theory.*—This theory assumes that an actual blockage to the drainage mechanism is the cause; it is based upon concepts established largely by gonioscopy. Most ophthalmologists in this country believe in this theory, whereas the English are proponents of the neurovascular theory. Others are of the opinion that a combination of the two factors may cause the elevation in tension.

## PRIMARY GLAUCOMA

*Breed Incidence.*—Primary glaucoma is found almost exclusively in one breed of dogs, the Cocker Spaniel, indicating a hereditary predisposition. Secondary glaucoma, which occurs twice as frequently, is not confined to any one breed. The only congenital case we encountered was a male Cocker Spaniel pup with bilateral buphthalmos, "blue" corneas, and high intraocular tension.

Forty-one eyes affected with primary glaucoma were seen in 27 dogs, all but 2 of which were Cocker Spaniels. Of the 41 eyes, 15 were classified as acute congestive; seven as chronic congestive; and 19 as absolute glaucoma. A diagnosis of acute congestive glaucoma was made when the history revealed that the attack had occurred within the past 48 hours and when all congestive signs (e.g., cloudy media, vessel injection) were pronounced. A diagnosis of chronic congestive glaucoma was made when the history indicated an attack of acute congestive glaucoma had taken place previously, usually a few days to a few weeks before, when the changes were less intense than in an acute attack, and when it was felt some vision still remained in the eye. A diagnosis of absolute glaucoma was made when, following medical or surgical relief of the acute or chronic forms, there was no return of vision; or when it was evident from the history and the time element that the disease had passed through the acute and chronic phases into the blind stage without known secondary factors affecting the tension rise. When only one eye was involved, the normal eye was covered to determine the approximate amount of vision in the affected eye.

It is difficult to draw a fine line between the stages, as the acute attack will often

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pass uninterruptedly into the absolute stage within a matter of hours. This is particularly true in the Cocker Spaniel where early diagnosis and treatment are necessary. Any acute congestive glaucoma in this breed should be considered as an emergency disease and should be promptly treated, regardless of the time of day or night, if useful vision is to be preserved.

*Color Incidence.*—Of the 25 Cocker Spaniels afflicted with primary glaucoma, 17 were black, 4 were black and white (parti-), and 4 were blond or red. However, no particular significance can be placed on these figures unless the ratio of coat colors in the breed in this country is determined.

*Sex Incidence.*—Of the 27 affected animals, 20 were females and 7 were males, a ratio of 3:1. The congestive form of glaucoma is reported to attack women more often than men but no ratio was mentioned.[7] One report gives a ratio of women to men of 54.4:45.5 in the age group over 50.[4]

*Eye Predilection.*—Of the 41 affected eyes, 24 were left eyes and 17 were right. It was determined that 17 of the dogs were first afflicted in the left eye, 9 in the right eye—a ratio of 2:1, which also resembles the ratio recorded in man.[1,2,4]

*Age Incidence.*—Before discussing age incidence, a comparative age scale between man and dog must be established so that time intervals following surgical procedures can be used in determining the efficacy of these procedures in tension normalization. Many believe that a dog's age can be compared with man's by the use of a fixed number (coefficient) during the entire life of the animal. However, this is said to be erroneous as the coefficient changes considerably during the life span[5] as shown (table 1).

TABLE 1—Comparative Ages of Dogs and Man

| Dog's age (yr.) | Coefficient | Man's age (yr.) |
|---|---|---|
| ½ | x 20.0 | 10 |
| 1 | x 15.0 | 15 |
| 2 | x 12.0 | 24 |
| 3 | x 9.3 | 28 |
| 4 | x 8.0 | 32 |
| 5 | x 7.2 | 36 |
| 6 | x 6.6 | 40 |
| 7 | x 6.3 | 44 |
| 8 | x 6.0 | 48 |
| 9 | x 5.8 | 52 |
| 10 | x 5.6 | 56 |
| 11 | x 5.4 | 60 |
| 12 | x 5.3 | 64 |
| 13 | x 5.2 | 68 |
| 14 | x 5.1 | 72 |
| 15 | x 5.06 | 76 |

In our series of primary glaucomas, the ages ranged from 3½ to 9 years (av. 6 yr.=40 yr. for man). Adult primary glaucoma in man is said to be a disease of middle and advanced age, the age incidence being lower in the strictly acute forms.[11] In one series, 67.3 per cent of the acute congestive types were in the 50 to 69 age bracket.[6] From these figures, it would appear that the age incidence for acute congestive glaucoma is similar in man and dogs.

*Weather Incidence.*—There is an obvious connection between weather conditions and the incidence of acute congestive attacks of glaucoma in man. In one series, 85 attacks occurred in northern cities during the cold months of October through March, with only 56 cases in the warmer six months.[6] When the dates of acute congestive attacks in Cocker Spaniels could be determined, 15 were found to have occurred in the October through March period and only 8 in the warmer half of the year. While our series is small, the similarity of seasonal incidence between man and dog is of interest.

*Hereditary Incidence.*—Glaucoma may be inherited as a dominant or as a recessive characteristic. In a study of 373 persons with primary glaucoma, 51 (13.7%) had one or more relatives affected with the disease.[8] In another series of 571 primary glaucomas, 102 (17.8%) had a hereditary history.[9] The average age of onset in this series was 56 years. Glaucoma has been shown to be not only familial, but definitely hereditary.[3] However, the inherited factor in glaucoma is as yet not known.

No data are available on the incidence of heredity in glaucoma in animals. Tracing pedigrees for an ancestral history is difficult. However, the mothers of 2 dogs in our series had been afflicted with glaucoma. We recall that, years ago, glaucoma occurred in three generations of Cocker Spaniels in one kennel.

*Second Eye Involvement.*—It has been well established that in man the second eye is especially susceptible to an acute attack of primary, shallow-chamber angle glaucoma following such an attack in the first eye.[12]

In the 27 dogs, with 41 eyes involved, the time interval between the attack in the first eye and that in the second varied from

two weeks to two years; all except two occurred within one year.

*Mechanism and Theory of Cause.*—In lieu of the overwhelming single breed incidence of primary acute congestive glaucoma in the dog, it is believed that a breed and familial predisposition is present. Anatomical factors may possibly contribute to this predisposition.

In man, there is strong evidence to support the theory that a narrow angle between the iris and the cornea predisposes to attacks of acute congestive glaucoma, the narrow angle thus offering an obstruction to the escape of the intraocular liquids. Acute congestive glaucoma is now being referred to as acute narrow-angle glaucoma in this country, but it is still not known if the angle is congenitally narrow or narrow as a result of some previous attacks.

Evidence obtained from gonioscopic studies (to be published) in the Cocker Spaniel favors the definite possibility that a narrow iris angle predisposes to acute congestive attacks in certain individuals within the breed. A narrow or closed angle was found in both the affected and still unaffected eyes of those individual dogs in which this examination was possible.

SUMMARY

A classification of primary glaucoma is made on the basis of 27 dogs with 41 affected eyes.

There are two conceptions as to the cause of primary glaucoma: (1) neurovascular, which assumes that the disease results from an abnormality in the ocular circulation, which might occur on a local basis within the eye or as a disturbance in the general circulatory system of the body as a whole; and (2) mechanical, which assumes that an actual blockage to the drainage mechanism is the cause.

Primary glaucoma appeared almost exclusively in Cocker Spaniels. The ratio of females to males was 3:1. There seems to be a predilection for the left eye and to middle-aged individuals. Twice as many attacks occurred during the colder six months. A familial and hereditary tendency was evident, and the second eye always suffered a similar attack in time.

There is reason to believe that a narrow iris angle predisposes to attacks of acute congestive glaucoma. Gonioscopic studies revealed the presence of narrow angles in both eyes of Cocker Spaniels subject to an acute attack.

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## Canine Glaucoma. III. Secondary Classification

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A classification of secondary glaucoma is made when the abnormal elevation of intraocular pressure occurs as a complication of some other disease or damage to the eye. The mechanism of secondary glaucoma is fairly well understood, in that both neurovascular and mechanical factors enter into its production, either separately or together, in the same eye.[6]

Our series includes 65 dogs with 93 affected eyes. The 65 dogs consisted of 17 Wire-Haired Terriers, 23 Cocker Spaniels, 3 Sealyham Terriers, 2 Welsh Terriers, 2 Boston Terriers, 2 Boxers, and 1 each Smooth-Haired Fox Terrier, Toy Terrier,

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*Abstracts from the thesis accepted by the faculty of the Graduate School of Medicine of the University of Pennsylvania in partial fulfillment of the requirement for the degree of Master of Medical Science in ophthalmology.

Border Collie, Chihauhua, Spitz, Shelty, English Setter, and Welsh Corgi.

## CAUSES

Seven causes for the secondary glaucoma were recognized in this series and will be discussed in order of their frequency.

1) *Subluxation and Luxation of the Lens.*—It is believed that luxation occurs when the ligamentous attachment of the lens is completely disrupted and when it has vacated the patellar fossa; subluxation occurs when the ligamentous breakdown is partial and displacement incomplete.

In man, a number of mechanisms have been suggested as the cause of glaucoma secondary to partial or complete dislocation of the lens. The lens coming in contact with the ciliary processes may mechanically produce an irritative vasomotor reaction with edema, increased permeability, and increased aqueous formation.[4] If the lens is subluxated forward, the angle of the anterior chamber may be partly blocked by the root of the iris pressing against the cornea. If the lens is completely luxated into the anterior chamber, it may block the pupillary space. Also, a dislocated lens may set up a uveitis which in turn leads to secondary glaucoma. Others believe that a pupillary block occurs when vitreous is pushed into the pupillary space by the posterior dislocation of the lens.[1]

Secondary glaucoma resulting from subluxation of the lens is known to be familial. The genealogical tree of a family in which there were many cases of glaucoma associated with subluxation of the lens has been reported.[3]

Although there are a few early accounts of luxation of the lens in animals, the first significant report, from the standpoint of selective breed incidence, showed it to be predominant in the purebred Wire-Haired Fox Terrier and Sealyham.[10]

In a classical work on subluxation and luxation of the lens in dogs,[2] the condition was encountered in only the same two breeds, 90 per cent being in the Wire-Haired Terriers, and 10 per cent in Sealyhams. However, these figures were not considered to be significant because they resembled the breed population ratios. In over 100 cases observed, no animal was under 3 years of age and the sexes were divided about equally (males, 56%, females, 44%). When first examined, 62 per cent of the animals were bilaterally affected and 38 per cent unilaterally.

The study[2] indicated that lenticular displacement is a primary affection and is hereditable, *i.e.*, certain organic defects are inherited which terminate specifically in a defective zonule; also, that displacement of the lens is probably often precipitated by trauma but, before displacement occurs, some degree of genetic instability must be present in the suspensory apparatus.

That the disease is hereditable is presumed[2] from the following circumstances: (1) the preponderance of bilateral cases (60%); (2) the restricted and almost universal occurrence of the disease in the two named breeds of dogs; and (3) the indicated familial tendency. No figures are given as to the incidence of secondary glaucoma but all cases, with one exception in which no trace of a lens could be found at necropsy, were associated with luxation of the lens into the anterior chamber.

In our series, only dogs in which secondary glaucoma had already occurred were included and, in contrast to the above series in which subluxation and luxation were found in only two breeds, the condition was found in nine breeds and in 6 dogs of mixed breeding. Thirteen were in Wire-Haired Terriers, with an additional case in a Wire-Haired Terrier in which an intraocular hemorrhage prevented the establishment of cause. The condition was bilateral in 10 of the 13; their ages ranged from 4 to 7 (av. 5 yr.), and 5 were males while 8 were females. A familial incidence was established in several instances, the most striking being 3 closely related dogs from one city.

In the 3 Sealyhams, the average age was also 5 years and the condition was bilateral in all 3.

In the 14 Cocker Spaniels, glaucoma was bilateral in 3 and unilateral in 11. Although a number of the cases of glaucoma involving the Cocker Spaniel are included under secondary glaucoma as the result of subluxation or luxation, the writer believes that some of them were originally primary cases. Through long-continued tension increase, with resultant buphthalmos and stretching of the ocular structures, the lens suspensory apparatus is weakened, with a subluxation as the sequel. Primary cases of acute congestive glaucoma, which were untreated or failed to respond to treatment, often were observed to progress

through stages of increased buphthalmos with eventual subluxation or luxation. Thus, in dogs that were first seen after many months of tension increase, it was difficult to determine whether the lens displacement precipitated the glaucoma or vice versa. In other cases which were seen early in the course of the disease, the lens displacement was known to have precipitated the tension rise. Trauma, and a possible breed predisposition, may be the responsible factors.

The 1 Smooth-Haired Fox Terrier with unilateral subluxation and the 2 Welsh Terriers with bilateral subluxation, all 5 years old, emphasize the predisposition to lens displacement in the terrier group. If these two breeds were as populous as the Wire-Haired Terrier, Sealyham, Smooth- might be expected. Of 7 dogs with lens displacement, but without secondary tension increase, which were presented for lens removal to forestall secondary glaucoma, there was 1 each of the following breeds: Wire-Haired Terrier, Sealyham, Smooth-Haired Fox Terrier, Welsh Terrier, Welsh Corgi, Cocker Spaniel, and Manchester Terrier. Again, the average age was about 5 years.

*Clinical Signs.*—Since patients are presented during all stages of glaucoma, the clinical manifestations may include: (1) subluxation of the lens in any direction; (2) luxation into the anterior chamber; and (3) luxation into the vitreous humor. The degree of buphthalmos attending tension increase will, of course, depend upon the duration of the attack.

A corneal opacity often accompanies the lens displacement. Opacity was reported in all cases of luxation in one series.[10] In 87 per cent of another series,[2] corneal changes varied from a slight localized opacity to a diffuse vascularized keratitis. When an opacity is localized near the center of the cornea, the anterior pole of the lens can be observed to lie in contact with the endothelium of the cornea. The whole lens may be firmly adhered to the cornea in some instances. A striate keratitis has been observed in others with buphthalmos. It has been suggested[2] that most corneal lesions originate externally, affecting progressively the epithelium and subjacent corneal layers, and are caused by the affected animals blundering into obstacles because of the defective vision occurring after lens displacement.

The ease of diagnosing lens displacement, with or without secondary glaucoma, is again dependent upon the severity of the displacement. In the early stages, the only sign may be a distinct tremor of the iris, with movement of the head or eyes. This is known as iridodonesis and results when the iris no longer has a smooth resting place on the anterior capsule of the lens. If the pupil is dilated, the periphery of the lens may be readily seen as a silver gray line and the zonules may often be seen still clinging to the lens capsule. Examination in a dark or semidarkened room with magnification and focal illumination will materially aid in the diagnosis. Use of a Wood's light in a dark room will effect a green fluorescence of the lens which usually makes diagnosis simple. A displaced lens will become cataractous and, as transparency is lost, diagnosis is simplified.

2) *Uveitis.*—Glaucoma secondary to intraocular inflammations (uveitis) was the second most common type of secondary glaucoma in this series. Seven dogs were thus afflicted.

Posterior synechias resulting from an iritis are most frequently the cause of the tension increase. A complete adhesion of the pupillary margin of the iris to the anterior lens capsule (iris *bombé*) will result in an absence of circulation through the pupil, producing an increased pressure in the posterior chamber. The middle part of the iris will protrude forward, as the root and pupillary border are fixed. The lens diaphragm is also pushed forward. Due to the pressure of the iris root against the cornea, the chamber angle becomes blocked as in acute glaucoma.

3) *Essential Iris Atrophy.*—In two instances, in which iris atrophy was most prominent and discovered early, it was believed that the iris atrophy was primary to the glaucoma. An essential progressive iris atrophy is described in man in which iris tissue is lost in all layers.[5] This tissue loss results in a loss of the resorption capacity of the iris and tends to block the angle with iris debris.

It is necessary to see iris atrophy in the early stage in the dog in order to brand the atrophy as the cause of the glaucoma. As pointed out earlier,[11] tension increase of some duration will produce iris atrophy. A diagnosis of essential iris atrophy will always prove difficult in the dog, but the clinician's suspicions might be aroused if

an extensive iris atrophy without full pupil dilatation or without iris-lens adhesions is seen, and yet tension is increased.

4) *Injury and Infection.*—Adhesions as a sequel to trauma or endophthalmitis will, of course, block the drainage mechanism, with secondary glaucoma as the result. The series includes 5 cases in which injury was the cause, and 3 which resulted from a primary infection. The trauma or infection may precede the tension increase by some months. As a rule, this type of glaucoma is the most refractory to medical or surgical treatment.

5) *Postsurgical (Cataract Extraction).*—Secondary glaucoma following operations for cataracts is not uncommon. It was reported in 0.64 to 3.0 per cent of human patients after extracapsular extraction or discission.[8] The percentage is less following intracapsular extraction.

There are several principal reasons for secondary glaucoma following operations for cataracts. The most important factor is delayed reformation of the anterior chamber which, in turn, is due to fistulization. Iris prolapse, incarceration of lens capsule, long standing or repeated hyphema, or the presence of many cortical lens remnants will cause fistulization. Vitreous prolapse, with blockage of the angle or production of an iris *bombé*, is believed to be a cause of glaucoma. Postoperative iridocyclitis, epithelial ingrowth, and postoperative edema are additional causes.

In our series, 4 cases are classified as glaucomas secondary to cataract extraction, 2 of which had been subjected to a lens discission procedure six months, and four years, previously. The other 2 had extracapsular extraction and 1 of these was afflicted one month following surgery. At that time, it had vitreous in its shallow anterior chamber. The second had been operated on three years before, but considerable lens debris still remained in the anterior chamber.

6) *Lenticular Intumescence.*—Secondary glaucoma due to lens swelling (intumescence) occurs in eyes predisposed to acute attack by virtue of a narrow angle.[9] By means of gonioscopy, it was found that the angle of the eye opposite the one with lenticular swelling was of the narrow type.[7]

In swelling of the lens, during development of a cataract, there is a disposition to glaucoma due to the shallowing of the anterior chamber with a decrease in the circumlental space which permits other factors to block the angle. The swelling may even press the iris against the trabecular wall. Comparison with the normal anterior chamber depth in the opposite eye may be an important aid in diagnosis.

A Cocker Spaniel with a history of cataract formation of eight months' duration in the right eye was our only case of this type. The changes included a "steamy" cornea, immobile iris, shallow anterior chamber, swollen cataractous lens, episcleral vascularization, and tension well above normal.

7) *Hypermature Cataract and Spontaneous Lens Capsule Rupture.*—After passing through the intumescent or immature state, cataract progresses through the mature into the hypermature. In this stage, the cortex may become liquified, as may the entire nucleus in a younger individual. All that remains is a sac filled with milky fluid (Morgagni's cataract) due to the action of a lytic ferment. Only a thin transparent capsule is left, which will often rupture spontaneously. Three possible causes of glaucoma following spontaneous lens-capsule rupture have been listed:[8] (1) chemical irritation by lens substance, (2) increased protein content of the aqueous which tends to lessen the osmotic differential between the aqueous and the blood serum, and (3) obstruction of the trabecular spaces by particles of lens substance. The first is the only condition which appears to be present in every case.

Two cases of secondary glaucoma as a result of hypermature cataract and spontaneous lens capsule rupture were seen. Both were in Cocker Spaniels with cataracts of long standing.

## SUMMARY

Secondary glaucoma occurs when the abnormal elevation of intraocular pressure is the result of a complication of some other disease or damage to the eye. Lens displacement is by far the most important cause of secondary glaucoma in the dog. From the standpoint of breed incidence, the Wire-Haired Terrier predominates, but no dog is exempt. Uveitis, essential iris atrophy, injury and infection, surgical sequelae, lenticular intumescence, and hypermature cataract may also be followed by a

tension rise with a resultant secondary glaucoma.

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## Novobiocin—Oral and Intramuscular Use in Dogs and Cats

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Novobiocin (Albamycin) is a new antibiotic effective against a wide range of gram-positive and gram-negative bacteria, but especially against *Micrococcus pyogenes* var. *aureus*, *Streptococcus pyogenes*, *Diplococcus pneumoniae*, and *Proteus vulgaris*.[4] Its favorable qualities include: (1) no cross-resistance with other antibiotics, (2) bactericidal effect at approximately two times the minimal inhibitory concentration, (3) rapid absorption following oral administration, (4) high blood concentrations following oral and intramuscular administration, (5) unlikeliness to develop resistance in clinical use, (6) wide diffusion into tissues and fluids, (7) approximately 3 per cent of the oral dose is excreted in the urine in active form, (8) well tolerated by patients, and (9) low order of toxicity.[1-3] This report summarizes results of oral and intramuscular therapy with novobiocin in canine and feline patients.

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### CLINICAL USE

Novobiocin therapy was used in 11 representative cases (8 dogs and 3 cats). The age of the dogs ranged from 9 weeks to 6 years, and they weighed from 8 to 50 lb. The 3 cats were about a year old. Conditions treated were peritonitis (1); dystocia (cesarotomy) (1); skin abscesses (3); enteritis (2); cystitis (1); metritis (2); and mastitis (1). Most of the cases treated were initially given one dose intramuscularly and the following doses were given orally. The average daily dose was approximately 20 mg. per pound of body weight per day for dogs and 25 mg. per day for the cats. Judged by the criteria of temperature reduction and disappearance of signs of infection, clinical response was usually excellent. Temperatures were returned to normal within 24 to 36 hours. The average time of therapy was five days.

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*The Mycotic Dermatitis Organism.*—A branching filamentous organism, isolated from mycotic dermatitis lesions in sheep, has reproduced the disease when cultures were applied to other sheep. This organism, *Actinomyces dermatonomus*, is either identical or closely related to the fungus which causes "strawberry foot rot."—*D. S. Roberts in Austral. Vet. J. (June, 1957): 141.*

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Homologous bovine globulins, presumably antibodies, appear in the precolostrum within 22 hours of their introduction into the blood stream. They are concentrated at least 13 times by the mammary gland.—*Vet. Bull. (July, 1957): Item 2106.*

# Clinical Experience with Mepazine

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SINCE 1954, INVESTIGATIONS have been under way to determine the value of mepazine (Paxital*)[3,4,7] as a tranquilizing agent. Most of the work has been done in Europe and mostly on laboratory animals and man. Recently, however, reports have been published describing clinical investigations in dogs.[1,2,6]

We have completed a series wherein 150 different dogs were each given from one to many doses of mepazine. The purposes or conditions for which we administered it were: preanesthetic sedation, 25; to prolong anesthesia, 12; acute fear, 21; viciousness, 18; confinement fretting, 45; general restraint, 28; and tetanus, 1.

## USES OF MEPAZINE

*Preanesthetic Sedation.*—This is one of the important uses for this drug which has the faculty of potentiating barbiturates and of reducing the turbulence of the preinduction and recovery stages of anesthesia.[3,7] Two milligrams per pound of body weight appears to be the optimum preanesthetic dose. Most authors recommend giving the drug one hour prior to anesthesia.[3] However, since it is more convenient to handle a patient only once, we give the drug slowly, intravenously, then wait ten minutes and give pentobarbital. By this method, the normal dose of the barbital (1 Gm./lb.) can be reduced by 20 to 30 per cent, thus considerably increasing the safety of anesthesia.

*Postanesthetic Use.*—The ability of mepazine to potentiate barbiturates can be used effectively to prolong anesthesia also. When an animal requires additional anesthetic, it is safer to give some other drug than the one used originally.[5] A patient recovering from anesthesia too soon can be given mepazine slowly to effect. The response will be much the same as giving additional barbiturates. If mepazine is used preanesthetically, it is not used again postanesthetically. However, if morphine is used preanesthetically, the use of mepazine postanesthetically is not precluded.

*Nervous Animals.*—Long-term drug administration to nervous or vicious animals at home, to overcome conditions of this nature, has not been too successful in our hands. The people who own this type of animal seem to find it particularly difficult to maintain a prolonged series of treatments. In addition, an animal which loses its viciousness under tranquilization is simply drugged and, regardless of the length of treatment, will revert to its former behavior as soon as the effect of the drug is gone.

In certain dogs, particularly where the nervousness is attributable to a specific unpleasant experience, the use of mepazine may produce more than a transient palliative effect. Under the influence of this drug, the "triggering" experience may become relatively unimportant and, after several days of anxiety relief, the animal seems to either regain the confidence which had been damaged by the unpleasant experience, or simply "forgets" the problem, even after the drug is withdrawn.

The response of nervous or vicious animals is of a highly individual nature. The dose required seems to be determined by the degree of excitement as much as the size of the patient. Some dogs require 4 mg. per pound to respond as much as others would at 1.5 mg. per pound. This wide variation in dosage is one of the difficulties with using this drug. In addition, the patient response is more "subtle" than one would expect—a property which enhances the value of the drug but complicates the dosing. However, after the dose has once been established, such as for a patient undergoing a series of x-ray treatments, the effect is beneficial to the patient and to the veterinarian; the refractory patient is more docile and cooperative.

A dog requiring only a small or moderate dose will not react in any way which would indicate to his owner that he had been "tranquilized." However, the adequate dose for a severely excited dog will often cause

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*Paxital, the trade name for mepazine, is produced by Warner-Chilcott, Morris Plains, N.J.

a rather pronounced lassitude. The dog is not specifically ataxic, but it is obviously under some form of "chemical restraint." This reaction is not particularly undesirable but we have found it advisable to be sure the client understands its condition when his pet is returned to him.

Mepazine is considered one of the safer of the phenothiazine derivatives.[7,8] It has been extensively investigated in various laboratory animals by several workers.[7] We have made no attempt to confirm their work but have found no reactions which were contrary to those reported.

*Fretting.*—One of the important deterrents to hospitalizing many patients is that they fret at being separated from their owners and at confinement. Much of this anxiety can be allayed by sufficient dosage of mepazine. Most dogs will respond to 1 gr. per pound every 12 hours, but the proper dose and time schedule must be established for each individual. If used concurrently with treatment, the possibility of drug interaction must be considered. To maintain an animal on this drug for a prolonged period would require an appraisal of the economics involved.

*General Restraint.*—Mepazine has been of real value for inducing patient cooperation. It quiets an animal so that it will allow such procedures as clipping, bathing, tooth cleaning, ear treatment, minor surgery, etc. However, where actual pain is involved, such as in surgery, a local anesthetic is indicated.

In many cases, the drug has been effective in keeping a patient from mutilating a wound, lesion, or bandage.

Dermatitis is a particularly severe problem in the South. While mepazine has been of some value in allaying patient molestation of such lesions, this would seem to be one of its less beneficial uses. The cases in which it is effective must be determined largely by trial and error.

*Tetanus.*—The 1 animal treated for tetanus did not seem to be affected by mepazine. However, no conclusions can be drawn from the observation of 1 case.

## CONCLUSIONS

1) Mepazine enhances the cooperation of the animal patient which is nervous, frightened, or vicious.

2) No undesirable side effects were observed.

3) Most patients under the influence of moderate doses do not show evidence of being "drugged."

4) This drug potentiates barbiturates and, as a consequence, facilitates anesthesia.

5) For prolonged restraint, the drug has been only fairly successful and in some cases not successful at all.

6) The dose recommended to date by the manufacturer is about one half the dose we found most helpful.

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*Metabolic Fate of Sulfur in Sheep.*—When radio-labeled sulfur was given orally to sheep, absorption was rapid (the peak at 6 hours) and excretion averaged 49 per cent in urine and 31 per cent in feces in four days. Appreciable amounts were detected in all tissues including the new growth of wool. Most of the sulfur in the liver, spleen, and skin was in the form of cystine and methionine.—*Vet. Bull. (Aug., 1957): Item 2468.*

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*Tetanus in Man.*—During the five years ending in 1954, an annual average of 501 cases of tetanus were reported in the United States and deaths averaged 352 (70%). In 1955, there were 462 cases and 265 deaths (55%). The effectiveness of immunization in preventing tetanus was demonstrated by the U.S. Army experience. —*J.Am.M.A. (July 6, 1957): 1173.*

**Surgery and Obstetrics**
**and Problems of Breeding**

# Vaginal Temperature of Dairy Cows Before and After Calving

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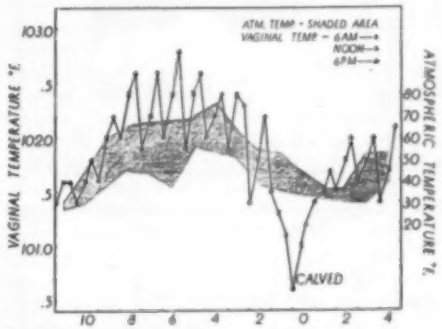
A SURVEY of available literature with reference to pre- and postparturient temperatures in cows revealed only one brief article,[1] a summary of articles which had appeared in two Austrian and three German veterinary journals. The article states:

> A phenomenon which has not been mentioned in English and American veterinary literature is the distinct fall in temperature in gravid animals a certain time before parturition. This fact can be used clinically in order to predict to a high degree the onset of parturition in most domestic animals, but especially so in the bitch where it can be utilized in determining the indication and time of operative measures. This temperature phenomenon is thought to be the result of an anaphylaxis incurred by metabolic products of the placenta.
>
> For example, in the cow, the temperature differences were seen to be greater in the gravid animal than in the nongravid condition. Approximately four weeks before parturition, the temperature of the cow gradually increases to the physiological maximum (103.1 F.) and then rapidly falls about 1.6 degrees one day before parturition. The temperature reaches normal about 24 hours postpartum. The sudden fall in temperature predicts birth within a day. This same reaction was also noted in the mare. The results are less reliable in primipara and very old dams. Temperatures should be taken two or three times a day.

## PROCEDURE

Vaginal temperatures were taken on 3 Jersey, 3 Ayrshire, and 2 Holstein-Friesian cows of the West Virginia Agricultural Experiment Station herd. Temperatures on each cow were taken daily at 6 a.m., 12 noon, and 6 p.m., starting ten days prior to the estimated calving date. During this same period, the daily maximum and minimum atmospheric (outside of barns) temperatures were recorded. All of the cows involved in this study calved between Oct. 15 and Dec. 1, 1949. None of the cows exhibited any abnormalities that would influence vaginal temperatures.

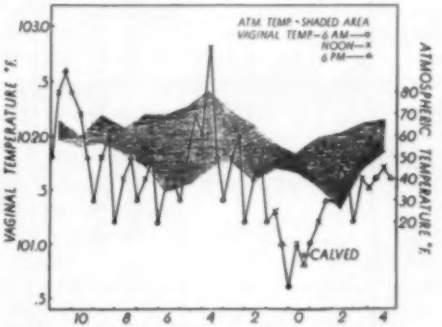



Graph 1—The daily temperature fluctuation of cow 589-J (6 yr. 3 mo. old) showing the marked decrease just prior to calving.

## RESULTS

The vaginal temperatures on 8 cows two to 11 days before, and one to four days after, calving, and daily maximum and minimum atmospheric temperatures, are shown (graphs 1-8). The high and low vaginal temperatures taken prior to calving are recorded (table 1).

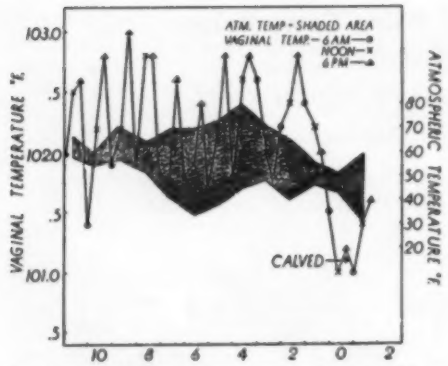
In most instances, the morning temperature was the lowest, with a gradual increase through the day, and the evening temperature being the highest. A pronounced drop in vaginal temperature often occurred 24 to 48 hours prior to calving, regardless of time of day and atmospheric



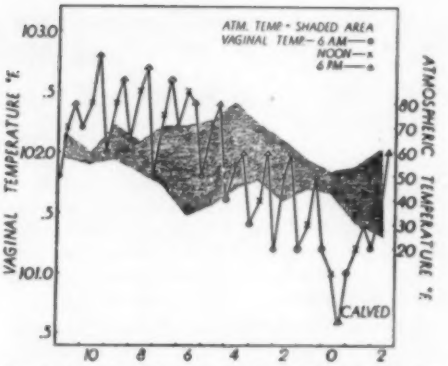

Graph 2—The daily temperature fluctuation of cow 602-J (4 yr. old).

From the department of Animal and Dairy Husbandry, West Virginia University, Morgantown.

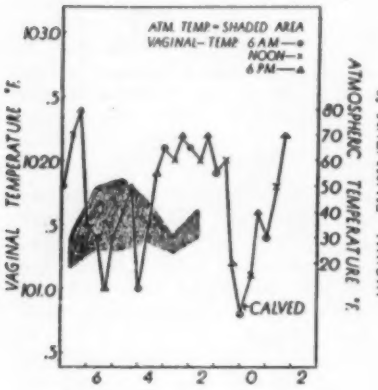
[1]Weisz, Leo: The Temperature Phenomenon Before Parturition and Its Clinical Importance. J.A.V.M.A., 102, (Feb., 1943): 123

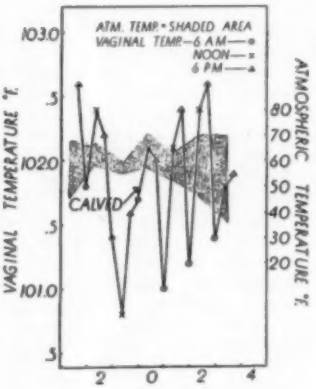



Graph 3—The daily temperature fluctuation of cow 804-A (4 yr. 7 mo. old).



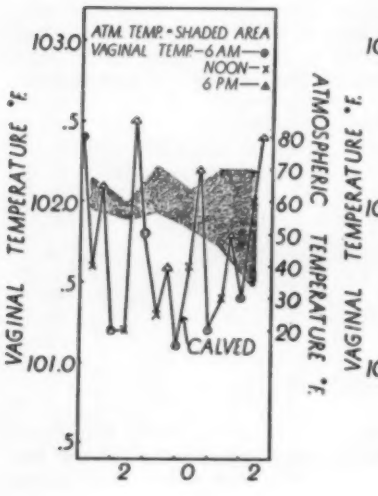

Graph 4—The daily temperature fluctuation of cow 864-A (2 yr. 2 mo. old).

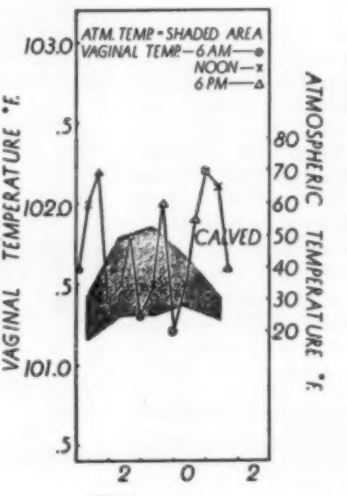



Graph 5 (Left)—The daily temperature fluctuation of cow 833-A (3 yr. 2 mo. old). Notice that the temperature was as low several days (4.0 and 5.5) before calving as at parturition.

Graph 6 (Right)—The daily temperature fluctuation of cow 53-J (7 yr. 10 mo. old).




Graph 7 (Left)—The daily temperature fluctuation of cow 30-H (4 yr. old). No definite preparturient drop in temperature occurred.

Graph 8 (Right)—The daily temperature fluctuation of cow 36-H (3 yr. 6 mo. old). No definite preparturient drop in temperature occurred.

TABLE 1—High and Low Vaginal Temperatures of 8 Cows Taken Prior to Calving

| Cow No. and breed* | Age (yr.-mo.) | Taken from figure | Highest 24-hr. before | Lowest 8-12 hr. before | Difference | Lowest prior to the 24-hr period |
|---|---|---|---|---|---|---|
| 589-J | 6-3 | 1 | 102.2 | 100.6 | 1.6 | 101.2 |
| 602-J | 4-0 | 2 | 101.2 | 100.6 | .6 | 101.2 |
| 804-A | 4-7 | 3 | 102.0 | 101.0 | 1.0 | 101.4 |
| 864-A | 2-2 | 4 | 101.9 | 100.6 | 1.3 | 101.2 |
| 833-A | 3-2 | 5 | 102.2 | 101.2 | 1.0 | 101.0 |
| 53-J | 7-10 | 6 | 102.4 | 100.8 | 1.6 | 101.8 |
| 30-H | 4-0 | 7 | 101.8 | 101.1 | .7 | 101.2 |
| 36-H | 3-6 | 8 | 102.0 | 101.2 | .8 | 101.3 |

*J=Jersey; A=Ayrshire; H=Holstein-Friesian.

temperature (graph 1-4 and 6). A decided drop in vaginal temperature 96 and 132 hours prior to calving was recorded for cow 833A (graph 5). The vaginal temperatures of 2 cows (graph 7, 8) fluctuated so much that a definite drop in temperature before calving could not be recognized.

## CONCLUSIONS

The vaginal temperature of 5 of 8 cows dropped 1.0 to 1.6 degrees 24 to 48 hours before calving. The temperatures of the 3 other cows fluctuated so much that it was impossible to accurately detect a drop in temperature in relation to calving. These limited data indicate that a drop in vaginal temperature could be used to predict the time of calving in over 50 per cent of the cows.

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*Inert Materials in Hernia Repair.*—Medical literature is replete with reports extolling materials such as tantalum, nylon, and other fabrics in the repair of hernias. Basically, the repair of a hernia requires only reduction of the content, obliteration of the sac, and closure of the orifice. Use of the patient's own tissues offers the best hope of permanent repair. Foreign material causes tissue reaction which always impedes the normal delicate healing process. Accumulations of serums often require aspiration, and infection may predispose to recurrence of the hernia. In later surgery on many patients in which some type of inert implant had been used, it invariably seemed that implants were not indicated in the first operation. Recurrent hernias with multiple draining sinuses present real problems. The indiscriminate use of this practice should be condemned.—*Roland L. Maier, M.D., Am. J. Surg. (July, 1957): 1.*

## Innervation of the Abdominal Wall of Cattle — an Abstract

The advantages of paravertebral anesthesia for surgical procedures involving the lateral abdominal wall and the inconsistent results associated with the technique described by Farquharson indicated the need for fundamental research on this problem.

The last thoracic and the lumbar spinal nerves in 22 cattle followed a variable course in regard to the transverse processes of the vertebra. The dorsal branches pass above, while the ventral pass below, the intertransversales muscle and its fascia. This fascia is heavy enough to prevent anesthetic agents from diffusing through it. Thus, an anesthetic solution must be deposited both above and below this fascia to block both the dorsal and ventral branches.

The dermatomes (area of skin supplied) of the last thoracic and the first, second, and third lumbar spinal nerves were determined by transecting the dorsal roots.

The anterior border of the dermatome of the last thoracic spinal nerve passed posterior to the thirteenth thoracic vertebra. It ran in a ventral and posterior direction across the distal border of the thirteenth rib and the costochondral junction of the twelfth rib to end posterior to the umbilicus. The posterior border followed a course parallel to the anterior border and did not include the anterior border of the mammary gland.

The anterior border of the dermatome of the first lumbar spinal nerve began posterior to the first lumbar vertebra and extended in a ventral and posterior direction to include the costochondral junction of the thirteenth rib. The posterior border included the anterior part of the mammary gland.

The dermatome of the second lumbar spinal nerve also extended in a ventral and posterior direction. The posterior border included the anterior edge of the base of the scrotum or the anterior edge of the mammary gland.

The dermatome of the third lumbar spinal nerve in the bull included the skin over the tuber coxae, the lateral side of the thigh, and the scrotum (fig. 1). In the female, it included all but the anterior edge of the mammary gland and did not

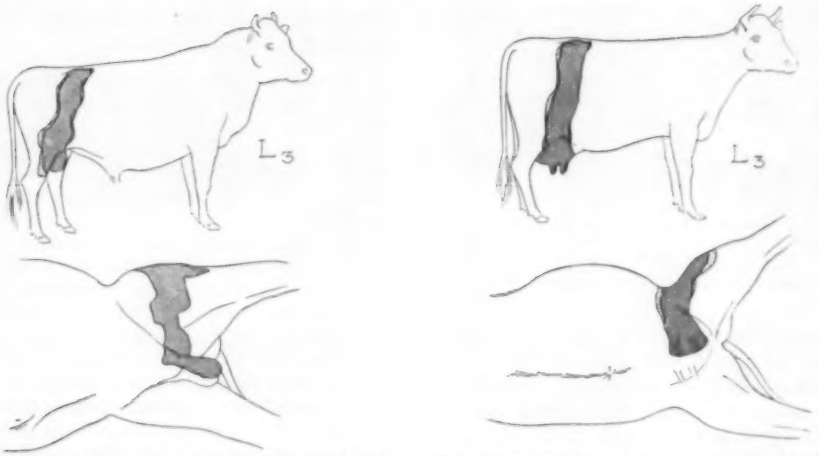


Fig. 1 (Left)—Two views of the dermatome of the third lumbar spinal nerve of male cattle, and (right) two views of the dermatome of the third lumbar spinal nerve of cows.

extend as far posteriorly in the inguinal region (fig. 1).

There is considerable overlapping of the dermatomes of the spinal nerves which supply the lateral abdominal wall. As many as three spinal nerves may innervate a particular area.

When the dorsal lateral branches of spinal nerves T13, L1, and L2 were cut, the area desensitized reached to the middle of the lateral abdominal wall.

Thus, to obtain good anesthesia of a given area of the lateral abdominal wall, at least three spinal nerves should be blocked. If only the dorsal lateral branches of the nerves are blocked, the area anesthetized will not extend below the middle of the lateral abdominal wall.—[*J. P. Arnold and R. L. Kitchell: Experimental Studies of the Innervation of the Abdominal Wall of Cattle. Am. J. Vet. Res., 18, (April, 1957): 229-240.*]

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*A New Local Anesthetic.*—Procaine, the most widely employed local anesthetic for over 50 years, has limitations in being slow to take effect and relatively short in duration. A new agent, propoxycaine HCl (Blockain—George A. Breon & Co., New York, N. Y.), has been used in 71 surgical patients. The dosage (0.5%) ranged from 1.0 to 17.0 cc., averaging 3.3 cc. The effect was rapid and more prolonged than with procaine, even with the addition of a vasoconstrictor. No side effects were observed. —*J. H. Mitchell et al. in Am. J. Surg. (July, 1957): 111.*

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*Reserpine in Obstetrics.*—Reserpine, 2 mg. intramuscularly, was given to 26 women, in Argentina, when the cervix started to dilate prior to delivery. The drug acted as a tranquilizer for the mother, stimulated strong uterine contractions and dilatation of the cervix, and shortened labor. In all cases, the delivery of the membranes and involution of the uterus was normal.—*J.Am.M.A. (July 27, 1957): 1514.*

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*Swine Semen Preservation.*—In a recent pilot test, boar semen was shipped long distances by air to Beltsville, Md., where it was successfully used to inseminate sows 30 to 40 hours after it was collected. Unlike semen from bulls, swine semen is destroyed by freezing under any present methods. In this test, the semen was treated with sodium citrate and egg yolk and kept at a temperature of 59 to 68 F. during shipment. Of 24 sows bred, 11 (46%) farrowed strong pigs, averaging 9.2 per litter of which 7.4 (80%) were alive at 21 days.—*U.S.D.A. Release, Aug. 21, 1957.*

*Feeding Corn Silage to Sows.*—In a gestation experiment, at the Iowa Experiment Station, with sows and gilts in drylot, 12 lb. of corn silage per sow per day was fed, supplemented with a 20 per cent protein corn silage balancer containing carbohydrates, protein, vitamins, minerals, and antibiotics. The 112 females farrowed an average of 11.53 pigs with an average weight of 2.8 lb. When the same total amount of corn silage and balancer were fed during the gestation period, but at a lower rate for the first 75 days, then at a one half higher rate, there were about 1.5 more pigs per litter than when the balancer was fed at the same rate throughout. There was no difference in early milk production.—*J. Anim. Sci. (Aug., 1957): 600.*

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*The Influence of Drying Methods on the Nutritive Value of Corn.*—Wet corn, when dried at temperatures up to 135 F., was equal in protein nutritive value to field-dried corn. Wet corn heated above 135 F. showed a progressive loss in protein nutritive value with increasing temperature. At 173 F., about half the protein value was lost. The addition of amino acids, lysine, and tryptophane to the feed partly corrected the loss in protein nutritive value caused by high temperature drying.

In a temperature range up to 173 F., there was no significant loss of energy value in the mechanically dried corn.—*R. E. Davis and C. A. Cabell in Feed Age, Jan., 1957.*

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*Protein Level for Boars on Pasture or Concrete.*—When 72 weanling boars of two breeds were fed the same basic ration, at the Iowa Agricultural Experiment Station, either on alfalfa pasture or on concrete, and on varying levels of protein, those fed 10 per cent protein were so unthrifty that this level was discontinued and the improvement in gains increased with the protein level up to 19 per cent. At higher levels, gains decreased. A 13 per cent protein ration was adequate for boars on legume pasture but not for those on concrete. Thickness of the back fat decreased as the level of protein was increased.—*J. Anim. Sci. (Aug., 1957): 607.*

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*Effect of Protein on Production of Bloat.*—When fresh egg white (4 liters) was introduced into the rumen of cattle which had eaten ground, dehydrated alfalfa, it resulted in the reduction of frequency of eructation for 90 minutes, and a moderate bloat. A stable foam was produced in the rumen. This suggests that water-soluble plant protein may be an important factor in the development of bloat in cattle fed legumes.—*J. Dai. Sci. (July, 1957): 759.*

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*Phosphorus Deficiency and Bloat.*—An animal deficient in phosphorus, either from hereditary genetic defects or from a low phosphorus ration, may bloat regardless of the level of nutrition in the feed. Ruminants with phosphorus deficiency should be fed a mineral phosphate or feeds with a high phosphorus content before being placed on lush legume pastures.—*H. P. Cooper in Southeast. Vet. (Summer, 1957): 120.*

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*Foam-Dispersing Agents for Bloat Therapy.*—An investigation, *in vitro,* indicated that many of the old established tympanites remedies exert a formerly unrecognized foam-dispersing effect. The agents tested included oils, ethereal fats, alcohols, and preparations including various silicones.—*Vet. Bull. (Aug., 1957): Item 2457.*

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*Feeding Sorghum to Hogs.*—Sorghum grain when cracked or rolled is about equal to corn, pound for pound, as a hog feed. When only the heads are harvested and put in the silo, while in the dough stage, sorghum makes silage which is about equal to ear corn silage in feeding value.—*Farm J. (Sept., 1957): 12, 45.*

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*Fat an Energy Source.*—To supply a high level of energy for chickens, it is necessary to add fat to the feed. Chickens can tolerate any quantity of fat provided other essential nutrients are in balance. The composition of the body fat of broilers and of the egg yolk can be influenced by dietary fat. In broilers, a high body fat content improves the finish, whereas ducklings often become too fat. The fat content of a dressed duckling carcass was 33 per cent on a 16 per cent protein diet, based chiefly on corn, but was only 24 per cent when the protein level was increased to 28 per cent. Not all fats are equally valuable in the poultry ration, there being impor-

tant differences in digestibility and utilization; animal fats of relatively low melting points (greases) seem superior to other types of fat.—*Frontiers in Nutr., 78, (1957): 280.*

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*Feeding Fat to Poultry.*—Chickens were recently raised on a ration in which 95 per cent of the nonprotein calories were furnished with fats. When given all the amino acids and vitamins they needed, there were no ill effects whether the fats were of animal or vegetable origin or were so-called "hard" or "soft" fats.—*Wallaces' Farmer (July 20, 1957): 10.*

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Fat in the diet has not yet been proved the villain in heart and artery disease. A drastic change in fat intake is not justified, according to the American Heart Association.—*Sci. News Letter (Aug. 31, 1957): 142.*

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*Chicks Need Salt.*—The ration of unthrifty chicks with a high death rate and retarded sexual development was found to contain only 0.18 per cent salt. The condition was corrected and growth improved when salt was increased to 0.94 per cent. At 4.0 per cent, the birds were thrifty but thirst was increased and the droppings were soft. At 6.2 per cent, the death rate increased and the carcasses were watery. Egg production seemed best when the salt level was 3.5 per cent.—*Successful Farm. (Sept., 1957): 16.*

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*Salt Poisoning in Poultry.*—In three instances in which a total of 660 chickens and 130 ducks died suddenly after showing excessive thirst, incoordination, convulsions and, in some cases, diarrhea, analysis showed 1.95 to 3.5 per cent of sodium chloride in the crop and 2.9 to 6.5 per cent in the feeds. The lethal dose for a hen is considered to be 4.5 Gm./kg. of body weight; for a dog 3.7 Gm./kg.—*Vet. Bull. (Aug., 1957): Item 2494.*

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*Sodium Needed by Salt-Deficient Cows.*—Seven cows that had been on a salt-deficient ration for 16 months showed salt hunger, poor appetite, and lack of condition. There was an increase in their milk production, body weight, and roughage consumption when they were fed either sodium chloride or sodium bicarbonate but not when they were given chloride in the form of magnesium chloride. The increase in milk production and body weight could not be explained on the basis of increased roughage consumption.—*J. Dai. Sci. (June, 1957): 682.*

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*Grazing Behavior of Beef Cattle.*—Beef cattle showed a daily pattern, at the Virginia Agricultural Experiment Station, of high-grazing activity at approximately 4:00 to 8:00 a.m. and 4:00 to 8:00 p.m., with medium grazing at 10:00 to 12:00 a.m. The greatest regular grazing activity was at 4:00 to 8:00 p.m. Maximum and minimum daily atmospheric temperatures did not seem to influence the grazing behavior.—*J. Anim. Sci. (Aug., 1957): 681.*

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*Effect of Pasture Plants on Reproduction in Ewes.*—Because of the known effect of "flushing" ewes and a suspected effect on conception by different types of pasture plants, a three-year experiment was conducted at the Ohio Agricultural Experiment Station. Ewes grazing all season on bluegrass conceived three weeks earlier than those on Ladino clover or birdsfoot trefoil pasture. First service conceptions occurred in 66 per cent of the ewes on bluegrass, in 41 per cent on Ladino clover, and in 31 per cent on birdsfoot trefoil. The three year average lambing percentage showed no significant difference (131.2 to 137.7). Estrogenic activity was detected, by mouse uterine weight technique, in the Ladino clover and birdsfoot trefoil but not in the bluegrass.—*J. Anim. Sci. (Aug., 1957): 703.*

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*Calcium, Zinc, and Parakeratosis.*—When the calcium content of a ration containing 28 p.p.m. of zinc was decreased from 1.2 per cent to 0.5 per cent, at the University of Wisconsin, the weight gain of swine was increased and the incidence and severity of parakeratotic skin lesions was decreased but not completely prevented. Zinc had no toxic effect when fed 1,000 p.p.m. in the ration. This indicates that increasing the zinc content of the ration is a better method of controlling parakeratosis than limiting the calcium intake, which might result in a deficiency. When the calcium content of the ration was decreased from 1.2 to 0.5 per cent, there was no significant increase in the zinc content of the plasma, skin, or in-

testine, but there was a significant increase in the liver, kidneys, hair, and bones.—*J. Anim. Sci. (Aug., 1957): 578.*

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*A Bovine Re-entrant Duodenal Fistula.*—To aid in research on bovine digestion, a U-shaped plexiglass tube, through which the flow of duodenal content is exteriorized for study, has been devised at Michigan State University. To facilitate the operation, the lower half of the last right rib and its costal cartilage were resected, the duodenum was transected 5 inches from the pylorus (orad to the bile and pancreatic ducts entrances), and the stumps were closed. Stainless steel cannulas were then inserted through longitudinal incisions, 2 inches from each blind end, and were brought to the body surface through stab wounds 4 inches apart between the eleventh and twelfth ribs at the costochondral level. The cannulas were connected by the U-shaped tube (½ in. inside diameter). Flow of ingesta commenced soon after the steer recovered from the general anesthetic. The steer has remained in excellent health for nearly two years.—*H. C. Conner et al. in J. Anim. Sci. (Aug., 1957): 692.*

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*Prussic Acid in Corn Leaves?*—In drought-stricken areas, farmers were cautioned about pasturing or feeding stunted sorghum and sudan grass, and were reminded that drought-injured corn is also suspected of containing prussic acid in the growing tip.—*Rutgers Univ. Release, July 29, 1957.*

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*The Role of Antibiotics in Beef Cattle Nutrition.*—Antibiotics depress the appetite of cattle the first few days on high roughage feeds. The cattle fed antibiotics and hormones showed an increased growth rate over the controls. Antibiotic-fed cattle had less bloat and fewer liver abscesses than the controls. There was less shipping fever when cattle were fed antibiotics before transportation.—*T. W. Perry in Feed Age, Feb., 1957.*

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*Stilbestrol, Implanting vs. Feeding.*—Whether stilbestrol was applied, at the University of California, as a 15-mg. pellet implanted subcutaneously in the ear or was fed, 10 mg. per day for the first 150 days of the fattening period, the increase in gain (15%), in feed efficiency (10%), and in effect on carcass grade (none) was approximately the same. Both caused an increase in the size of teats, seminal vesicles, and prostate glands. Implantations of 30 to 60 mg. produced a greater increase in gain (25%) and in feed efficiency (20%) but also a slight reduction in carcass grade of the steers.—*J. Anim. Sci. (Aug., 1957): 662.*

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One of the most promising sources of the family of vitamins known as $B_{12}$ factors is the dry solids from sewage sludge. The true vitamin may be present to the extent of 2.4 $\mu$ per gram; 11 factors have been isolated.—*Nutr. Rev. (July, 1957): 216.*

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*Carbohydrate Utilization by Young Calves.*—A study with 8 calves given colostrum for two days, then whole milk, showed that during the first four weeks glucose and lactose were the only carbohydrates utilized. After 9 weeks of age, maltose was utilized. Other carbohydrates were not utilized until rumen function began.—*Nature (June 22, 1957): 1299.*

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*Parakeratosis "Dietetica" in Swine.*—Because of the nutritional aspects, this name has been proposed for the condition now called parakeratosis. The disease appears to be associated with insufficient absorption of zinc, either because of an inadequate water consumption, under automatic dry feeding conditions, or because of the high calcium feed content. High protein levels in the feed may also be a factor. The protein concentration of the feed could be reduced by the addition of such feeds as wheat bran or hay meal, or by giving green feed or grass silage.—*W. Hallgren and O. Swahn in Nord Vet.-med. (July, 1957): 489.*

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*Excretion of Stilbestrol Fed to Lambs.*—In a metabolism test at Iowa State College, when 4 lambs were fed diethylstilbestrol (1 or 2 mg. daily), 80 per cent was recovered in the urine and feces. At the 1-mg. level, there was twice as much in the feces as in the urine but at the 2-mg. level the amount in the urine increased until it nearly equalled that in the feces.—*J. Anim. Sci. (May, 1957): 307*

# Editorial

## Comments on Veterinary Medical Terms—II

Since publication of the editorial on veterinary medical terms (April 1, 1957:315), we have received several comments, both pro and con, on the suggested terminology. This indicated interest in veterinary medical writing has encouraged us to present the following further comments.

Among the words most frequently misused are those ending in *ology*, a suffix which means "a science," or "a branch of knowledge," or "a study of." However, we often see statements such as "the organ showed no pathology"; "the etiology was not determined"; "the serology was negative." Correctly stated, these would read: "the organ showed no pathological *changes*"; "the etiological *agent* was not determined"; and "the serological *tests* were negative."

The preference for the *ic* or *ical* ending of the adjective form of the *ology* words is based chiefly on esthetics. For consistency, our *Journals* usually use the *al* on words ending in *logic*. We are more intrigued by the inferences occasionally created when the adjective *pathological* (morbid, diseased) is used to modify nouns such as study, research, or laboratory. This might be interpreted as "morbid" or "diseased" research, etc. The importance of the proper use of adjectives was further emphasized recently when, in an article, "Rabid Reminiscences," the author related observations on rabid animals.

*Toxicity* and other terms used with reference to poisonous agents are sometimes misused, *i.e.* "copper can cause toxicity." Dictionaries define *toxic* (or toxical) as "pertaining to, due to, or of the nature of a poison"; *toxicant* (or intoxicant) as "a poisonous agent"; *toxication* as "poisoning"; but *toxicity* as "the quality of being poisonous, especially the degree of virulence of a . . . poison." Therefore, *toxicity* is a function of a poisonous agent. The effect on the victim should be *toxicosis* or *intoxication;* however, the latter may be less acceptable since it is often associated with the excessive use of alcohol.

### New Terms

The need for clarity and brevity of expression justifies the coining of new terms, but where should the line be drawn between classifying such as jargon or as acceptable terms? For instance, the use of verbs as nouns, e.g.—a *vaccinate*, a *castrate* (for a vaccinated or castrated animal), or even an *operate*. With the advent of artificial insemination, the use of another verb, *ejaculate*, as a noun has been popularized. If this trend is continued we may find *urinate* used for a sample of urine, and *defecate* used for feces. Either *ejaculation* or *semen specimen* could be used but we like *ejaculum*, a term used by *Nature*, a British publication.

The word *kill* is laboriously evaded by some authors. However, all the terms substituted for it have some connotation other than simply terminating a life. *Destroy* suggests demolishing, *slaughter* suggests butchering, and *sacrifice* is not accepted because its basic meaning is "to make sacred." The term *euthanasia* is accepted as meaning humane death. A verb form is needed so we are proposing *euthanatize*, rather than euthanize, since the Greek root is *thanatos*. These forms are comparable to anesthesia and anesthetize.

A new term, *perinatal*, is now widely used in medical literature to denote the immediate pre- or postnatal period, or both. Although the prefix *peri* means around or about, its application to objects (periphery, periosteum, etc.) is so firmly established that its use with reference to time does not seem appropriate. We do not use perinatal.

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## Why a Time Lag in Publication?

Authors are often concerned about the length of time between submittal of a manuscript, their return of galley proofs, and publication. Manuscripts are numbered, as received, to indicate the sequence of publication. However, if an article is especially timely or related to other articles, it may be published without regard to sequence. As soon as a manuscript is accepted, it is prepared for, and sent to, the printer. In a week or ten days, galleys are received and mailed to the author.

The minimum time between return of galleys by the author and publication in the JOURNAL is about four weeks. However, the need to allow for an emergency in the editorial or publishing offices makes it advisable to maintain a backlog of material in type equivalent to two or three issues. Thus, the time lapse between return of galleys and publication is usually five to ten weeks.

For the quarterly *American Journal of Veterinary Research*, it takes longer.

ABSTRACTS

## Cytopathogenic Effects of Hog Cholera Virus

In the search for a useful cytopathogenic effect of hog cholera virus (HCV), studies were conducted utilizing about 4,400 primary explant tissue cultures representing ten tissues from swine embryos.

The following observations were made:

1) Lymph node cultures exposed prior to being embedded in plasma clots developed cytoplasmic changes in cells of the outgrowth. The mitochondria of the juxtanuclear zone were changed to spheroidal shape with clear, light, halos; cytoplasmic volume was reduced with attendant bubbling of the cellular membranes and subsequent filamentous strands of attachment to the glass at previous sites of attachment; and there was increased granularity of the cytoplasm. Lymphocytes were observed to die following exposure to virulent HCV.

2) Choroid plexus cultures were retarded in outgrowth grossly and showed inconsistent microscopic changes.

3) Cerebellum, kidney, testes, duodenum, spleen, heart, liver, and lung tissue cultures were not affected measurably by the presence of HCV under the conditions of these studies.—[*D. P. Gustafson and C. M. Pomerat: Cytopathogenic Effects of Hog Cholera Virus on Embryonic Swine Tissue in Vitro. Am. J. Vet. Res., 18, (July, 1957): 473-480.*]

## Growth of Hog Cholera Virus in Peripheral Blood

A new method for the cultivation of the virus of hog cholera in large or small quantities *in vitro* was demonstrated in cultures utilizing cells from peripheral blood. Leukocytes and not erythrocytes were found responsible for the virus growth. Blood was centrifuged, the serum removed, and the cells to be used selected by aspiration. The cells were suspended in the serum diluted 1:1 with basic salt solution.

Three separate culture systems were described and results checked with hog cholera virus from two different sources. The virus strains reacted somewhat differently in serial passage, with one strain appearing readily adaptable to *in vitro* culture and showing less antigenic variation than the other. One strain maintained pathogenicity through 29 passages in leukocyte cultures.

A method of using delayed anti-hog cholera serum injections was shown to demonstrate subprotective immunity which had been produced by exposure to nonpathogenic strains of the virus. The method is dependent upon the inability of anti-hog cholera serum to protect against injected virus when delayed more than three days after the virus exposure.

The described systems offer a simple method for *in vitro* cultivation of viruses and a definite tool for the study of the pathogenesis of hog cholera and other viruses of a septicemic nature.—[*H. W. Dunne, A. J. Luedke, C. V. Reich, and J. F. Hokanson: The in Vitro Growth of Hog Cholera Virus in Cells of Peripheral Blood. Am. J. Vet. Res., 18, (July, 1957): 502-507.*]

## Swine Tissue Culture Systems

Growth of trypsinized swine kidney cells on glass in static tissue culture was studied. Potential nutriments from a variety of sources were evaluated for their relative usefulness in growth mediums.

Swine embryonic extracts; extracts of fetal lung, liver, and kidney; and amnionic fluids from swine and cattle did not increase cell growth when added to a basal medium comprised of Hanks' balanced salt solution and 40 per cent swine serum. Addition of $Co^{++}$ or yeast extract or treatment of mediums with trypsin was also without effect. Definite stimulation of growth resulted from the addition of an enzymatic hydrolysate of lactalbumin.

Evaluation of the influence of serums was made in a Hanks' lactalbumin-basal medium. Serums from adult swine and cattle were preferred as a source of nutriments for swine kidney cells to serum from the young of those species, and were also preferable to horse serum. Five per cent serum was found necessary for growth of cells but larger cell populations were obtained when greater amounts of serum were added to the basal medium. Optimum levels were 20 per cent swine serum and 40 per cent bovine serum.—[*G. A. Young, N. R. Underdahl, and L. R. Sabina: Swine Tissue Culture Systems. Am. J. Vet. Res., 18, (July, 1957): 466-472.*]

## Endogenous Development of Eimeria Zurnii in Cattle

Infective oocysts of *Eimeria zurnii* (Rivolta, 1878) Martin, 1909, were given to 14 young calves that were killed and examined at various periods between two and 20 days afterward. Schizonts were seen at two days, and were still present 19 days after infection. They were located in the small intestine, cecum, and colon. Mature schizonts had between 24 and 36 merozoites and averaged 9.6 by 13.2 $\mu$ in size. Merozoites, first found at seven days, were between 5.4 and 12.2 $\mu$ in size, and were located in the small intestine, cecum, colon, and rectum. Macrogametocytes, averaging 10.6 by 13.5 $\mu$, were found at 12, 14, 15, and 19 days, mostly in the lower small intestine, cecum, colon, and rectum. Microgametocytes were found only at 15 and 19 days, and averaged 9.7 by 13.8 $\mu$ at 19 days. They were fewer in number than the macrogametocytes. The microgametes were small, densely stained, comma-shaped bodies, arranged peripherally in mature microgametocytes. Immature oocysts were first apparent at 12 days. They were found in the cecum and colon, with fewer numbers in the lower small intestine.—[*L. R. Davis and G. W.*

*Bowman: The Endogenous Development of Eimeria Zurnii, a Pathogenic Coccidium of Cattle. Am. J. Vet. Res., 18, (July, 1957): 569-574.*]

## Experimental Bovine Vibrio Fetus Infection

Vibriosis could be produced by vaginal as well as uterine exposure in 10 (71.4%) of 14 heifers. Evidence of infection was based upon the "repeat-breeding syndrome," the recovery of *Vibrio fetus* organisms from the uterine discharge, and the demonstration of specific agglutinins in the cervicovaginal secretions. There was a distinct correlation between detectable vaginal mucus agglutinins and lowered reproductive efficiency. The vaginal mucus agglutination test proved to be a valuable aid in the diagnosis of bovine vibriosis, provided samples for testing were not collected at or near estrus. Detectable levels of agglutinins in the cervicovaginal secretions were obtained four to ten weeks following exposure. Vaginal mucus titers persisted for approximately four to 12 months. The practical diagnostic value of the serum-agglutination test for vibriosis appeared doubtful.—[*H. Blobel, J. Simon, and S. H. McNutt: Observations on Experimental Bovine Vibrio Fetus Infection. Am. J. Vet. Res., 18, (July, 1957): 579-583.*]

## Milk Cows in Selenium Area

A test conducted to determine whether arsenicals or high level proteins could overcome the toxicity of selenium ended inconclusively. The cows did not eat enough of the selenium feeds to bring on signs of poisoning. However, there was some suggestion that the higher protein levels have a beneficial effect.

An interesting observation was made with regard to uptake of selenium by various plants on the same soil. Legumes, alfalfa, and clover showed much higher levels (11.4 to 57.0 p.p.m.) than corn (0.17 to 12.5 p.p.m.).

Selenium intoxication is described. Early signs include lameness caused by split hoofs, loss of hair over various parts of the body, and anorexia. As the condition progresses, there is an obvious loss of weight and drop in milk production. Eye lesions and abnormal births were also seen.—[*R. Volcani, A. Bondi, Y. Lewin, and Ch. Neumark: Maintenance of Milk Cows in a Selenium Affected Area. Refuah Vet., 13, (Dec., 1956): 160-163.*]—M. ERDHEIM.

## Chicken Embryo Lethal Orphan Virus

Since the fall of 1952, a hitherto undescribed viral agent has been isolated occasionally from the embryonating chicken eggs used in diagnostic work at the University of Rhode Island. From serological studies, this agent appeared to be a cause of a common infection of chickens but if it produced disease it was too mild to be recognized clinically. The agent produced dwarfing and death in inoculated chicken embryos. The embryonic changes resembled those induced by the virus of infectious bronchitis. Serologically, the agent did not appear to be related to any of the common viruses found in poultry. When the agent was introduced intracerebrally into young chicks, a small percentage of the birds developed nervous signs and succumbed. This appears to be another inapparent, egg-transmitted viral agent that must be taken into account in all laboratory procedures involving the use of chicken embryos.—[*V. J. Yates and D. E. Fry: Observations on a Chicken Embryo Lethal Orphan (CELO) Virus. Am. J. Vet. Res., 18, (July, 1957): 657-660.*]

## Ear Punch for Rats

An ear punch for rats made from a snipe-nosed plier can be fabricated inexpensively in any institutional shop. Details of construction are described.—[*Bennett J. Cohen, and Chester Chalberg: A Simple Ear Punch for Use on Laboratory Rats. Am. J. Vet. Res., 18, (July, 1957): 687.*]

# BOOKS AND REPORTS

## Monnig's Veterinary Helminthology and Entomology

This is the fourth edition of the text formerly titled "Veterinary Helminthology and Entomology" by Monnig, with the original author's name inserted into the title by Lapage who prepared this edition. The purpose of the original author—to present not a complete manual with a mass of detail but the most important practical factors of the subject—was retained by the present author and has been realized to an appreciable degree.

The general form of this well-known book has been preserved, but there are certain important changes. The introductory chapter is greatly expanded. The chapter on diagnostic techniques has been moved to the back of the book where it is easier to use. The changes in the section on helminthology consist largely of some corrections and the bringing up-to-date of much of the material. The greatest changes are in the section on entomology where much of the material is rewritten. The illustrations are good, even those of the worm eggs.

As is true with most books, some errors of previous editions still persist as, for example, the incorrect location of the adults of Aelurostrongylus, the cat lungworm. In general, however, the practicing veterinarian will find the book an excellent reference. Unfortunately, much of the discussion is necessarily brief; for example, the discussion of ostertagiasis is inadequate for the veterinarian in areas where this condition is of clinical importance.

In this book, as in other current parasitology texts, the parasites are presented according to their zoological classification.—[*Monnig's Veterinary Helminthology and Entomology. By Geoffrey Lapage. 511 pages. Illustrated. Williams and Wilkins Co., Baltimore 2, Md. 1956. Price $8.50.*]—W. S. BAILEY.

# THE NEWS

## Armed Forces Institute of Pathology Offers Short Postgraduate Course for Fourth Year

A postgraduate short course on "Pathology of Diseases of Laboratory Animals" will be conducted at the Armed Forces Institute of Pathology from Dec. 9-13, 1957.

The course is designed to provide training for professional officers who have charge of procurement and maintenance of animal colonies.

Pathology will be the theme of the course, but this facet will be used as a point of departure for discussion of etiology, diagnosis, and control of the diseases under consideration. A portion of the subject matter previously presented will be repeated.

Laboratory officers, veterinarians, and others with similar professional backgrounds should find the course of value. Applications from civilian physicians, dentists, and veterinarians should be submitted to the Director, Armed Forces Institute of Pathology, Washington 25, D. C., before Oct. 28, 1957. Requests will be filled on a space-available basis.

## Institute of Laboratory Animal Resources Urges More Research in Animal Pathology

The Institute of Laboratory Animal Resources at its spring meeting on June 11, 1957, passed the following resolution proposed by Dr. Paul Weiss of the Rockefeller Institute for Medical Research:

> The Institute of Laboratory Animal Resources, cognizant of the need for a broader understanding of animal diseases, both for the practical purpose of providing medical and biological research with the best possible investigative animal materials and for the broader purpose of promoting research on animal diseases for a better understanding of biological and pathological phenomena in general, strongly urges the intensification of basic research in the field of animal pathology and, in particular, of the diseases of animals used in laboratory investigations and testing.
>
> s/Berton F. Hill, *Executive Secretary.*

## Institute of Industrial Health, University of Cincinnati, to Hold Symposium on Fluorides

The Institute of Industrial Health at the College of Medicine, University of Cincinnati, will hold a three-day Symposium on Fluorides Dec. 9-11, 1957.

The purpose will be to present recent information concerning the physiological behavior of the absorption of fluorides. Discussions will include a brief review of what is known of fluoride metabolism and a considerable amount of data that have hitherto been unreported.

The symposium will be open to physicians and dentists in industry and public health and to other professional persons interested in the subject. Attendance will be limited and early application is suggested. The registration fee will be $50.

For further information and application blanks write to Secretary, Institute of Industrial Health, Kettering Laboratory, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

## Dr. Alvin Price New Dean at Texas A. & M. College

Dr. Alvin A. Price (TEX '49), formerly assistant professor of veterinary anatomy, was named dean of the School of Veterinary Medicine at the A. & M. College of Texas on Aug. 23, 1957.

Dr. Price, who was born in Dublin, Texas, Oct. 8, 1917, graduated from Tarleton State College at Stephenville in 1938, then attended Texas A. & M. where he received his B.S. degree in 1940 in dairy husbandry; he then devoted his efforts to the creamery business until he entered the army in 1942.

Dr. Alvin A. Price

He served as an infantry officer in the African, European and Middle Eastern areas, where he earned six citations and was promoted to battalion commander with the rank of colonel.

Dr. Price returned to Texas A. & M. College as a war veteran student in 1946 and enrolled in the School of Veterinary Medicine. He received his D.V.M. degree in 1949 and remained at his alma mater as an instructor in veterinary medicine, working meanwhile on his M.S. degree in veterinary physiology, which he received in 1956.

In the eight years since he received his veteri-

nary degree, Dr. Price has served as acting head of the Veterinary Anatomy Department, as a delegate to the House of Representatives of the American Veterinary Medical Association (1952-1953), and served also as executive secretary and editor for the Texas Veterinary Medical Association. He was president of the Texas V.M.A. in 1956 and is now president of the American Association of Veterinary Anatomists. He has served as president of the Phi Zeta and Phi Kappa Phi honorary fraternities at Texas A. & M. College.

In 1956, Dr. Price was one of five Texas A. & M. faculty members selected by the Association of Former Students for a $1,000 award for distinguished service in teaching at the college.

Dr. and Mrs. Price have two children. He succeeds Dean W. W. Armistead, who recently resigned to become dean of the School of Veterinary Medicine at Michigan State University.

## Dr. H. E. Adler Awarded Newman Trust International Poultry Award

Mr. John R. Harvey, secretary of the Newman Trust International Poultry Award, announced July 18, 1957, that the 1957 Newman Award has been presented to Dr. Henry E. Adler for the most outstanding research work published in 1956 in the fields of poultry husbandry and avian medicine.

Dr. Henry E. Adler

Dr. Adler is an associate professor of veterinary medicine in the experiment station in the School of Veterinary Medicine, University of California. His investigations have contributed to improved understanding of the pleuropneumonia-like organisms and the mode of transmission, diagnosis, and control of chronic respiratory disease of chickens and infectious sinusitis of turkeys.

The award, instituted nine years ago by the Poultry Association of Great Britain, has been awarded six times to research workers in the United States and three times to United Kingdom researchers. The award consists of a medal and £50.

Among the members of the Award Committee in the United Kingdom are: Drs. H. Temperton, J.P., N.D.P., National Institute of Poultry Husbandry, Shropshire; Mr. E. T. Halnan, M.A., Cambridge; and Mr. Michael Pease, M.A., Cambridge.

## Association of Military Surgeons, Sixty-Fourth Annual Meeting

The sixty-fourth annual meeting of the Association of Military Surgeons of the U.S. will be held at the Hotel Statler, Washington, D.C., Oct. 28-30, 1957.

The veterinary section will convene in the South American Room, October 28 from 2:00 to 4:00 p.m. Colonel M. B. Starnes, director, Division of Veterinary Medicine, Walter Reed Army Institute of Research, will preside.

The subjects to be discussed are: Experience in the Lengthening of Bones of Dogs; Significance of Drugs in Food; Radioactive Contamination of Foods and Animals; and Military Rations.

# AMONG THE STATES AND PROVINCES

## California

**State Association.**—The midwinter conference of the California V.M.A. will be held Jan. 27-29, 1958, at the School of Veterinary Medicine, University of California, Davis.

Large and small animal demonstrations will be held, with prominent practitioners from various parts of the country presenting papers. Dr. Charles H. Ozanian is program chairman.

s/CHARLES S. TRAVERS, *Executive Secretary.*

## Connecticut

**Connecticut Eighth State to Be Declared Modified-Certified Brucellosis-Free.**—Connecticut was declared a modified-certified brucellosis-free state on July 26, 1957. This is the eighth state, and the third this year, to achieve this status in the program to eradicate brucellosis.

s/NEIL W. PIEPER, *Resident Secretary.*

## District of Columbia

**District of Columbia Academy of Veterinary Medicine.**—The last meeting of the District of Columbia Academy of Veterinary Medicine was held Aug. 15, 1957. Dr. John Gorham, Washington State University, presented a discussion and slides on "Distemper Virus."

On Sept. 10, 1957, Dr. Jacques Jenny spoke

on "Orthopedic Surgery" and Dr. William Magrane will discuss "Veterinary Ophthalmology" on November 21. Dr. Magrane's speech, which is available to all members of the Academy, will culminate a four-day course on the theory and practice of his subject.

s/MARSHALL J. WAPLE, JR., *Chairman.*

## Iowa

Mrs. Edwin J. Osen, Anita, Iowa, the new president of the Women's Auxiliary to the Iowa State Veterinary Medical Association.

## Kansas

**Dr. Robert B. Barrett, New Radiologist at Kansas State College.**—Dr. Robert B. Barrett (COR '56) has resigned from general practice in Vergennes, Vt., to become radiologist for the newly developed Department of Radiology and Clinical Photography at Kansas State College.

The purpose of this department is to better acquaint students with the use of radiography as a diagnostic aid, explore and develop new methods in radiology to aid the practitioner and researcher, record clinical and visual aid material for instruction, and evolve a system of orthopedic surgery for both large and small animals.

## Kentucky

**State Association.**—The forty-sixth annual meeting of the Kentucky Veterinary Medical Association was held July 15-16, 1957, at the Brown Hotel, Louisville. Over 200 veterinarians were in attendance.

The speakers and their topics were: Drs. Svend Nielsen, Ohio State University, Columbus—Mucosal Disease in Cattle and Recently Recognized Diseases of Swine; J. M. Gillispie, River Forest, Ill.—Clinical Experience with Chymotrypsin in Oil, and Profitable Small Animal Veterinary Client Relations; Durward Olds, University of Kentucky, Lexington—Current Views on Causes of Infertility in Cattle; Donald Hoff, Warren-Teed Products Co., Columbus, Ohio—Klot, Its Clinical Manifestations; Jacques Jenny, University of Pennsylvania, Philadelphia—Treatment of Bone and Joint Illnesses. Part I and II; R. J. Ausherman, Del-Tor Veterinary Clinic, Lexington—Diagnostic Features of Canine Blastomycosis and Its Relation to Human Health; and R. H. Singer, Department of Agriculture, Frankfort—Copper Deficiency in Kentucky Cattle.

Part of the second-day program included: Drs. R. L. Hectorne, Kentucky Department of Public Health, Louisville—Report on Public Health; Fritz Haag, Southwest Research Foundation, Lexington—Sterility Studies of Semen; John Bryans, University of Kentucky, Lexington—Vibriosis; and E. R. Doll, University of Kentucky, Lexington—Arteritis and Rhinopneumonitis of Horses.

The officers elected for the ensuing year are: Drs. H. H. Sutton, Lexington, president; T. S. Maddox, Greenville, first vice-president; V. L. Nickle, Winchester, second vice-president; O. H. Holler, Madisonville, third vice-president; and R. H. Singer, Lexington, secretary-treasurer.

s/R. H. SINGER, *Secretary-Treasurer.*

• • •

**Women's Auxiliary.**—The semiannual luncheon and business meeting of the Women's Auxiliary to the Kentucky V.M.A. was held in the Louis XVI Room, Brown Hotel, Louisville, on July 15, 1957. Fifty-three ladies attended the session.

The following officers were elected for the coming year: Mrs. H. H. Sutton, Lexington, president; Mrs. H. A. Gray, Bowling Green, first vice-president; Mrs. N. A. Pott, Jr., Glasgow, second vice-president; and Mrs. R. H. Folsom, Danville, secretary-treasurer.

s/MRS. ROBERT H. FOLSOM, *Secretary-Treasurer.*

## Minnesota

**Death of Mrs. Carl F. Schlotthauer.**—Mrs. Carl F. (Emily) Schlotthauer, Rochester, died on Sept. 5, 1957, after an illness of about a year. Born in Oconomowoc, Wis., in 1905, the former Emily Jensen was married there to Dr. Schlotthauer in 1927, the same year that she and her husband settled in Rochester when he joined the research staff of the Mayo Clinic and Mayo Foundation.

Surviving are her husband, father, and two sons, Dr. John C. of St. Paul, and Dr. Charles G. of Rochester, both veterinarians; a grandson, two sisters, and one brother.

## Massachusetts

The Massachusetts Veterinary Medical Association presented Antoinette, a silver Miniature Poodle and her pups, on Boston's WGBH-TV in a series of public service programs. Dr. Douglas Stern (left), Department of Veterinary Science, University of Massachusetts, was moderator of the program; Dr. Paul R. Granholm (center), of Weston, is a past-president of the Massachusetts V.M.A., and Mr. Theodore Steinke is producer-director of the "Woofers" program.

## South Dakota

**State Association.**—The annual meeting of the South Dakota V.M.A. was held at the Cataract Hotel, Sioux Falls, Sept. 19-20, 1957.

Among the speakers and their subjects heard at the two-day session were: Drs. Glenn B. Rae, state veterinarian, Pierre—Disease Conditions in South Dakota; W. F. Waddell, veterinarian in charge, Pierre—A.D.E. Activities; J. P. Arnold, University of Minnesota, St. Paul, Minn.—Bovine Teat Surgery Problems; K. W. Smith, practitioner, Sioux City, Iowa—Small Animal Disease Problems; Paul Bennett, Iowa State Diagnostic Laboratory, Ames, Iowa—Disease Problems (illustrated); Peter E. Madsen, practitioner, Sheridan, Wyo.—Range Practice Problems.

Two films entitled "Common Diseases of Baby Pigs" and "Range Practice" were also presented.

s/J. L. NOORDSY, *Secretary-Treasurer.*

## Vermont

**Vermont Declared Modified-Certified Brucellosis-Free.**—Vermont was declared modified-certified brucellosis-free by the U. S. Department of Agriculture effective Aug. 12, 1957. It is the ninth state and the fourth this year to achieve certification.

The brucellosis eradication campaign in Vermont is jointly supervised by Dr. John Canty, state veterinarian, and Dr. Maynard Bryant, veterinarian in charge of U.S.D.A. animal disease eradication work.

Blood testing, ring testing, and calf vaccination greatly aided Vermont in attaining the brucellosis-free status. States already certified are: Connecticut, Delaware, Maine, Minnesota, New Hampshire, North Carolina, Washington, and Wisconsin. Several counties in 26 other states and in Puerto Rico have also been certified.

## DEATHS

Star indicates member of AVMA

★**Wade W. Garverick** (OSU '42), 44, Zionsville, Ind., died Aug. 8, 1957, in Memorial Clinic.

Dr. Garverick served with the Army Veterinary Corps during World War II. He was a member of the Indiana State Veterinary Association and was its first honorary president. He also served as the group's secretary for five years.

Dr. Garverick is survived by his widow, Irene, two daughters, a sister, and five brothers.

★**Thomas W. Gidley** (MCK '03), 75, Malvern, Iowa, died in the Council Bluffs Hospital, Aug. 29, 1957, after suffering a heart attack.

Dr. Gidley was a 54-year Mason, past-president of the Iowa State V.M.A., and a past-president of the Southwest Iowa V.M.A. He was also affiliated with the Missouri Valley Veterinary Association.

Dr. Gidley is survived by a son, a daughter, a grandson, and one sister.

★**Arthur M. Haushalter** (WES '05), 73, died May 31, 1957, in Menomonee Falls, Wis.

Dr. Haushalter was a member of the Wisconsin and Southeastern Wisconsin Veterinary Medical Associations.

★**Dermod McArdle** (CVC '20), 67, died in July, 1957, in San Francisco, Calif.

Dr. McArdle, a native of Ireland, was a member of the California and the Bay Counties Veterinary Medical Associations.

**Frank A. Moore** (IND '11), 80, Gaston, Ind., died June 2, 1957, after an extended illness. Dr. Moore had practiced veterinary medicine for 45 years prior to his retirement. Three sons survive.

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# APPLICATIONS

## Applicants—Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative Bylaws.

BARTH, HOWARD J.
Box 13, Litchfield, Ohio.
D.V.M., Ohio State University, 1946.

DYCHES, HUTSON P.
Augusta Road, P.O. Box 361, Aiken, S. Car.
D.V.M., U.S. College of Veterinary Surgeons, 1917.

FLY, GLEN O.
c/o Wilson & Co., Inc., Cedar Rapids, Iowa.
D.V.M., Ohio State University, 1935.

MOON, EUGENE E.
78 McLeod, Charleston, Ill.
D.V.M., Iowa State University, 1940.

MUELLER, William K.
690 West LaFayette Rd., Medina, Ohio.
D.V.M., Ohio State University, 1931.

NURSE, HAROLD G.
15797 Mack Ave., Detroit, Mich.
D.V.M., Ontario Veterinary College, 1950.

ROY, JOSEPH E.
12 De Billy, Levis, Que.
D.V.M., College of Veterinary Surgery of the Province of Quebec, 1946.

SHERER, KENNETH B.
1601 W. State St., Fremont, Ohio.
D.V.M., Ohio State University, 1930.

SHOOK, GERALD L.
Box 198, RFD 8, Defiance, Ohio.
D.V.M., Ohio State University, 1956.

SNYDER, W. E.
E. Kings Hiway and Munn Ave., Haddonfield, N. J.
D.V.M., University of Pennsylvania, 1947.

TRENHOLM, KENWOOD W.
132 Belcher St., Kentville, N.S.
D.V.M., Ontario Veterinary College, 1952.

WASHBURN, PAUL M.
Rt. 1, Jackson, Ohio.
D.V.M., Ohio State University, 1939.

## Applicants—Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative Bylaws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

### First Listing

BOFILL, JORGE
Maruri 1471, Santiago, Chile.
D.V.M., Universidad de Chile, 1954.
Vouchers: Julio San Miguel and Carlos H. Flores.

BOWIE, DWAIN T.
76 Med. Vet. (VFIL) APO 230 c/o P.O., New York, N.Y.
D.V.M., Alabama Polytechnic Institute, 1936.
Vouchers: Wm. E. Jennings and Edgerton L. Watson.

DALZIEL, GEORGE T.
834 Robinhood Lane, La Grange Park, Ill.
D.V.M., Kansas State College, 1942.
Vouchers: Gordon W. Vacura and Roy W. Upham.

LICANCURA, ALEJANDRO LENAM
Casilla 4, Nueva Imperial, Chile.
D.V.M., University of Chile, 1955.
Vouchers: Julio San Miguel and A. H. Quin.

LYLES, D. I.
P. O. Box 788, Tuskegee Institute, Ala.
D.V.M., Tuskegee Institute, 1949.
Vouchers: G. Wm. Cooper and Rodney T. Gross, Jr.

SALVADOR, BAZ
Ave. Marti, No. 61-14, Mexico D. F., Mexico City, Mex.
D.V.M., National School of Veterinary Medicine, Mexico City, 1954.
Vouchers: R. E. Lubbehusen and W. C. Schofield.

WEBB, ALFREDA J.
P. O. Box 676, Tuskegee Institute, Ala.
D.V.M., Tuskegee Institute, 1949.
Vouchers: Edward T. Braye and G. Wm. Cooper.

WEIL, FREDERICK
1611 U.S.A.F. Dispensary, McGuire AFB, N.J.
D.V.M., Ohio State University, 1952.
Vouchers: David O. Jones and Joseph H. Berger.

WILLIAMS, RAYMOND C.
P. O. Box 267, Tuskegee Institute, Ala.
D.V.M., Kansas State College, 1946.
Vouchers: G. Wm. Cooper and Edward T. Braye.

WILLIAMS, THEODORE S.
P. O. Box 216, Tuskegee Institute, Ala.
D.V.M., Kansas State College, 1935.
Vouchers: G. Wm. Cooper and Edward T. Braye .

### Second Listing

VEENSTRA, ROBERT J.
13401 Grenoble Dr., Rockville, Md.

## Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative Bylaws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

### First Listings

#### University of Illinois

CLARK, LAWRENCE G., D.V.M.,
12 Lincoln Way, Sparks, Nev.
Vouchers: E. E. Maas and C. C. Bickley.

COSTER, RICHARD D., D.V.M.,
Rt. 1, Box 35, Elgin, Ill.
Vouchers: David A. McConnell and Edward Saunders.

#### University of Minnesota

HANSEN, MICHAEL H., D.V.M.
Rockville, Minn.
Vouchers: L. J. Hanson and John C. Schlotthauer.

#### University of Montreal

L'ECUYER, CONRAD, D.V.M.
18 Perrot St., Wrightville-Hull, Que.
Vouchers: Ronald Gwatkin and Alexander Robertson.

#### Texas A. & M. College

FOWLER, JACK L., D.V.M.
Rt. 1, Lakeview, Texas.
Vouchers: I. S. Meyers and D. E. Williams.

WILLIAMS, EUGENE H., D.V.M.
9721 Wallisville Rd., Houston, Texas.
Vouchers: A. A. Lenert and William M. Romane.

Help your clients

# save safely on hog cholera vaccinations

***SWIVINE*** is completely nontransmissible and cannot cause a disease outbreak or regain virulence by back passage.

***SWIVINE*** has a distinct margin of safety over vaccines derived from blood or laboratory tissues of swine, because the Swivine virus is modified by hundreds of passages through rabbits, which are not a natural host to any swine disease. Therefore, Swivine cannot infect vaccinated pigs with any other swine disease.

***SWIVINE*** with serum provides protection that is immediate, continuous, lasting—*and economical.*

Available in 2, 5, 25 and 50 dose packages.

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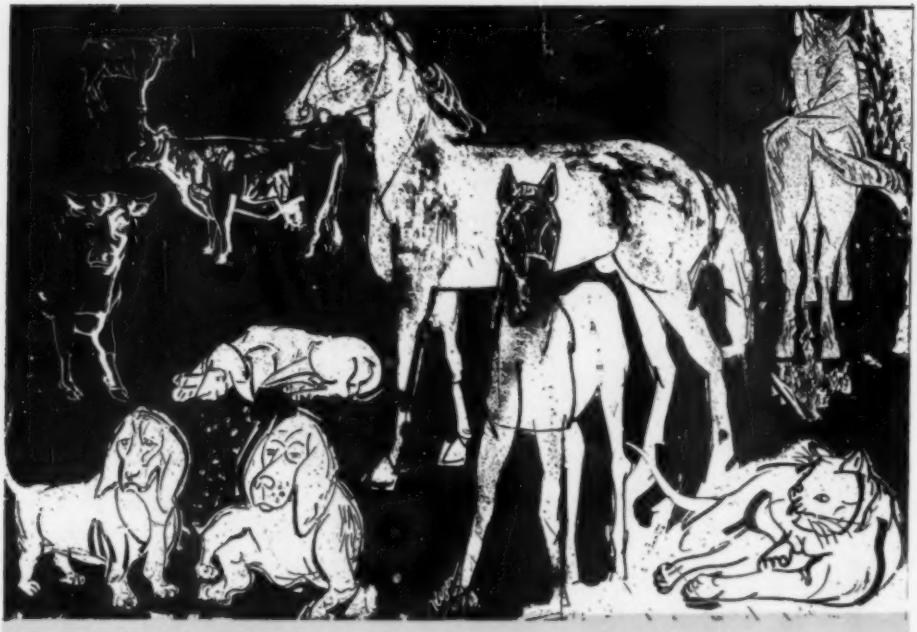
IN LARGE OR SMALL HERDS...

# *SWIVINE**

*immunizes rapidly, solidly*

*Trade Mark



prompt control of surface infections with

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brand of nitrofurazone

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- surgical & traumatic wounds
- burns
- eye & ear
- cutaneous ulcers
- pyodermas
- osteomyelitis of compound fractures

FURACIN products contain FURACIN 0.2% in water-miscible vehicles. Available as FURACIN Dressing Veterinary in jars of 4 oz. and 1 lb.; FURACIN Dressing with Anesthetic (butacaine sulfate 0.5%) in tube of ½ oz. and jar of 1 lb.; FURACIN Soluble Powder in plastic "puff" bottle of 10 Gm.; FURACIN Solution in bottles of 2 oz.; 1 pint; 1 gal. FURACIN Ear Solution in bottles of 1 fl.oz.

## FURASPOR®

brand of nitrofurfuryl methyl ether

*Triple-action fungicide, sporicide, bactericide in:*

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Available as FURASPOR Liquid Veterinary, containing FURASPOR 0.4%, quaternary ammonium compound 0.5%, in a water-miscible vehicle of benzyl benzoate 15% and water. Odorless and nonstaining. Bottles of 2 fl.oz. with dauber top, and 1 pint.

NOTE: FURASPOR is *contraindicated* for cats and rabbits because of the benzyl benzoate content.

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NITROFURANS—A NEW CLASS OF ANTIMICROBIALS—NEITHER ANTIBIOTICS NOR SULFONAMIDES

EATON LABORATORIES
NORWICH, NEW YORK

# What Is Your Diagnosis?

Because of the interest in veterinary radiology, a case history and radiographs depicting a diagnostic problem are usually published in each issue.

***Make your diagnosis from the picture below—then turn the page ▸***

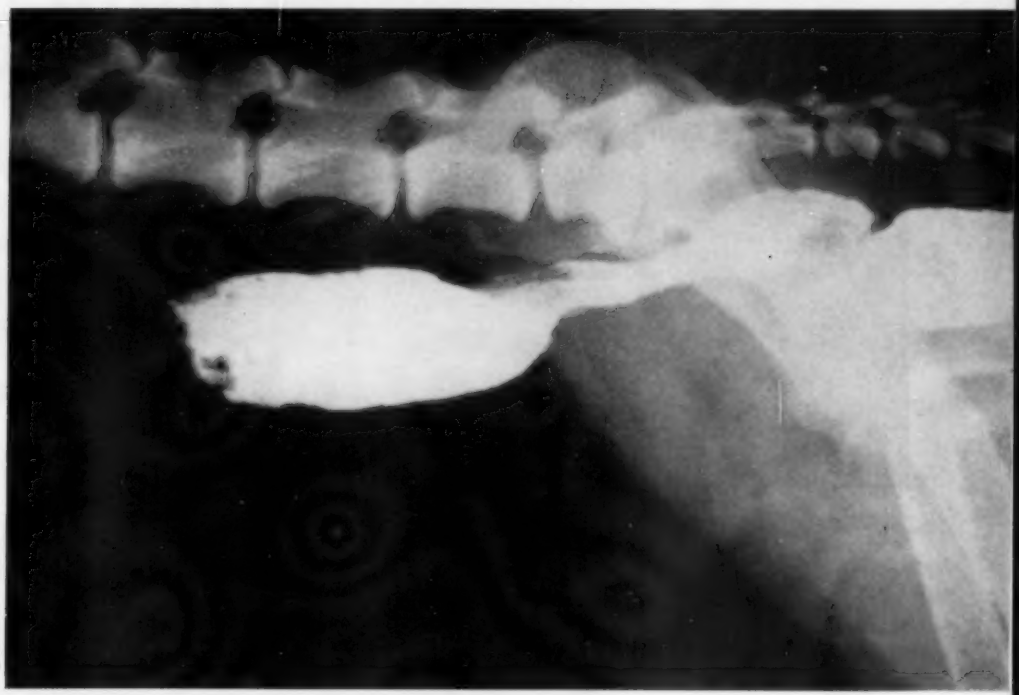

Figure 1

*History.*—A male Springer Spaniel, 9 years old, was acutely ill. He had been well except for a loss of weight during the past six months. He was depressed, and strained as if wishing to defecate. His temperature was 104.5 F. A sensitive, firm mass about 12 cm. in diameter could be palpated through the abdominal wall in the anterior pelvic region.

On rectal palpation the mass was found to extend from within the pelvic cavity into the abdominal cavity, constricting the rectum. The dog even objected to the entrance of a thermometer into the rectum. A barium enema was given and this lateral radiograph was taken (fig. 1).

***(Diagnosis and findings are reported on next page)***

## Here Is the Diagnosis

*(Continued from preceding page)*

*Diagnosis.*—Obstruction of the rectum. At necropsy, the obstruction was found to be the result of localized peritonitis involving periprostatic fat and connective tissue, and adherent omentum. The lesion was the result of a direct extension of diffuse, suppurative inflammation of the prostate.

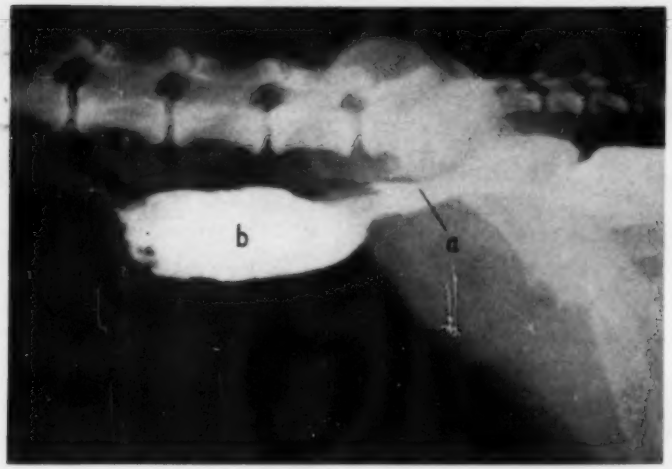


Fig 2—Lateral view of the barium-filled rectum showing (a) the area constricted by inflammatory tissue and (b) the dilated preconstricted portion.

*Comment.*—This radiograph (fig. 1 and 2) is the third in a series showing obstruction of the rectum, each obstruction due to a different cause. The first one (*see* JOURNAL, June 15, 1957, p. 543) showed an obstruction caused by a carcinoma of the rectum. The second (*see* JOURNAL, Sept. 1, 1957, adv. p. 45) was due to a tumor outside the rectum but within the pelvic cavity. The third, presented here, is the result of acute infection of the prostate and surrounding tissue.

In differentiating these conditions, three features should be given particular consideration: the course of the disease; the size, shape, and continuity of the lesion; and the character and contents of the feces.

A rectal cancer usually takes several months to develop, fever is seldom present, and the animal eats and shows no sign of pain. The mucosa is usually involved in a narrow zonary area, and the contour of the bowel is irregular. The feces contain blood and mucus.

An independent pelvic tumor usually develops slowly without any signs of illness until constipation occurs. The contour of the constricted bowel is relatively regular and the feces are normal but the stools have a small diameter.

An obstructing inflammatory process is usually acute, sensitive, and accompanied by fever. The contour of the bowel is relatively regular and the feces are normal.

Jen-Sal

# new NEOCIDE* BOLUS provides for bacterial calf scours!

New Jen-Sal NEOCIDE boluses dissolve rapidly, releasing high levels of neomycin, electrolyte salts and kaolin for immediate three-way attack on the total problem of calf diarrhea.

Neomycin, outstanding intestinal antibiotic, is almost non-absorbable from the intestine. It controls gram-negative organisms responsible for much diarrhea in young animals, with virtually no danger of post-treatment drug resistant infection.

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**reports received from premarket clinical testing indicate the unique advantages of new NEOCIDE therapy**

**no other medication —**
It was used on a calf from sale barn with scours and complications. No other medication was necessary.

**recovery in half the time —**
A farmer had 2 calves scouring. Neocide was given one, an antibiotic combination to the other. Neocide brought recovery in half the time of the other therapy.

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The results were excellent . . . complete . . . one calf had continued scouring several days even after receiving other therapy.

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Second Listing

### University of California

BOMAN, ALF E., D.V.M., 1950 Oleander Ave., Merced, Calif.

MASON, ROY E., JR., D.V.M., Univ. of Calif. Veterinary Clinic, Davis, Calif.

### University of Georgia

ATWELL, JOHN K., D.V.M., Rt. 1, China Grove, N. Car.

DODDS, A. J., D.V.M., 1609 Duncan Ave., Chattanooga, Tenn.

KAMENETZ, LEONARD, D.V.M., 414 North East Ave., Waukesha, Wis.

MAXWELL, ELLEN J., D.V.M., Saralyn Farms, Watkinsville, Ga.

STONE, HENRY D., D.V.M., Rt. 1, Union Bridge, Md.

SWAHN, FREDERICK H., D.V.M., R.D. 1, Whiteford, Md.

WEISS, JAMES D., D.V.M., 186 Grayrock Pl., Stanford, Conn.

WILKINSON, JAMES C., D.V.M., R.F.D. 2, Chilhowie, Va.

### University of Illinois

ABRAHAM, LEROY, D.V.M., 3948 Brennan Dr., Memphis, Tenn.

ALLEN, BENTON C., JR., D.V.M., Dunlap, Ill.

ARNDT, PAUL W., D.V.M., 2901 S. Harlem Ave., Berwyn, Ill.

BOER, JACK C., D.V.M., 2404 Roosevelt Dr., Redwood City, Calif.

GRAHAM, ROBERT C., D.V.M., 309 S. Vine St., Arthur, Ill.

MEYER, JAMES R., D.V.M., 526 N. Sangamon St., Gibson City, Ill.

MUMME, W. DAVID, D.V.M., 222 N. Liberty St., Elgin, Ill.

MYERS, WALTER L., D.V.M., University of Illinois, College of Veterinary Medicine, Urbana, Ill.

NELSON, NEAL S., D.V.M., 14236 Clark St., Chicago, Ill.

OWENS, JOAN M., D.V.M., 823 W. Buena St., Chicago, Ill.

### Michigan State University

ANDERSON, JOHN B., D.V.M., Box 191, Memphis, Mo.

SHELTS, ROBERT L., D.V.M., 1230 Iowa St., South Bend, Ind.

### University of Pennsylvania

BARENFUS, MORRIS, V.M.D., 86 S. State Rd., Highland Park, Pa.

BUSH, JOHN S., V.M.D., R.D. 2, Westfield, Pa.

DERSTINE, RICHARD D., V.M.D., R.D. 2, Sellersville, Pa.

EATON, VIRGINIA L., V.M.D., c/o Dr. M. W. Arnold, R.D., Kennett Square, Pa.

ENGLISH, BLAIR R., V.M.D., R.D. 1, Box 19, Gap, Pa.

GIULIANI, LILLIAN A., V.M.D., 815 Montgomery Ave., Narberth, Pa.

HAYDEN, HARVEY W., V.M.D., South St., Suffield, Conn.

HOPKINS, ELAINE J., V.M.D., Box 88, North Harwich, Mass.

JANSSEN, WILLARD G., V.M.D., Rt. 2, c/o Herman Janssen, West De Pere, Wis.

PUTNAM, CHARLES L., V.M.D., 814 W. 30th St., Erie, Pa.

WILSON, ROBERT E., V.M.D., 126 2nd St., Beach Haven, N. J.

### Texas A. & M. College

GALVIN, THOMAS J., D.V.M., Box 5658, State College Station, Raleigh, N. Car.

WILLIAMS, BILLY R., D.V.M., 2202 Ave. K., Lubbock, Texas.

## WOMEN'S AUXILIARY

President—Mrs. Leslie H. Moe, 1814 W. Third Ave., Stillwater, Okla.
Secretary—Mrs. A. W. Eivers, 1595 N. 18th, Salem, Ore.

**Fortieth AVMA Auxiliary Sessions.**—Sister Auxiliary Member—were you counted as one of the women registered at the Fortieth Annual Auxiliary Meeting held in Cleveland Aug. 19-22, 1957? If you were, you were feted at one of the finest conventions presented in auxiliary history, the Ohio women expending every effort to entertain and afford you maximum comfort and convenience. If you weren't, plan to join us in Philadelphia in 1958. You will be rewarded with inspiration and enthusiasm for auxiliary work.

At the Opening Session of the AVMA Ninety-Fourth Annual Meeting, held in the Music Hall of the Public Auditorium Monday morning, presidents of both the AVMA and the AVMA Auxiliary addressed the assembly. The Governor of the State of Ohio sent greetings. Following President Kester's address and presentation of awards, Dr. Leroy E. Burney, Surgeon General of the U.S. Public Health Service, spoke on health problems which concern the veterinary profession.

At the Monday afternoon tea in the Pine Room of the Carter Hotel, refreshments were served from a table decorated in an international theme.

Preceding the meeting of the House of Representatives in the Hotel Cleveland on Tuesday morning, 54 affiliated and 16 student auxiliary delegates were served coffee through the courtesy of the AVMA. Mrs. Lewis H. Moe, president-elect, presided at the meeting of the house. General Kester addressed the delegates briefly, stressing the opportunity afforded veterinarians' wives to educate and inform the public in their own communities about veterinary science, thus constituting a working force in public relations for the profession. The honor roll chart indicated that 39 auxiliaries qualified for all five stars, six of these 39 being regional groups, the most difficult in which to reach 100 per cent. Six of our auxiliary past-presidents were introduced: Mrs. Anthony Bott, Mrs. V. H. Miller, Mrs. Charles Bild, Mrs. Harold MacDonald, Mrs. Russell Runnells and Mrs. L. R. Richardson. Mrs. William Hagan, vice-president of the International Women's Auxiliary, was also present. Mrs. Robert Wright of Dundas, Ont., extended greetings from the Ladies' Auxiliary of Canada.

Immediately following adjournment of this session, the annual business meeting was called to order by the Auxiliary president, Mrs. A. E.

**The women's annual luncheon held in the Carter Hotel, Cleveland, on August 21, 1957.**

Coombs. This plan was inaugurated this year on a trial basis and received the commendation of the majority of the members present. A great need for additional contributions to the Student Loan Fund was reported, as numerous applications from needy students are being received. During 1956, the official board approved loans for $8,000.

The following officers were unanimously elected to serve for the coming year:

President—Mrs. Lewis H. Moe, Stillwater, Okla.
President-Elect—Mrs. A. E. Woelffer, Oconomowoc, Wis.
Recorder—Mrs. Frank Booth, Elkhart, Ind.
First Vice-President—Mrs. E. E. Leasure, Manhattan, Kan.
Second Vice-President—Mrs. J. I. Cornwell, Asheville, N. Car.
Third Vice-President—Mrs. T. W. Maddox, Greenville, Ky.
Secretary—Mrs. Austin Eivers, Salem, Ore.
Membership Secretary—Mrs. C. M. Rodgers, Blandinsville, Ill.
Treasurer—Mrs. John Stevens, Sequim, Wash.

During the Auxiliary workshop meeting held Wednesday morning, the membership secretary, Edmar Rodgers, reported that the membership was fast approaching 7,000. Thirty-seven states have membership secretaries and report that personal contacts with prospective and continuing members proved most worthwhile. Out of the 581 complimentary memberships presented to senior student wives in 1956, renewals were received from 204, and nine had made advanced payments for 1958. Our future rests in the hands of these young women and we are grateful for their enthusiasm and support.

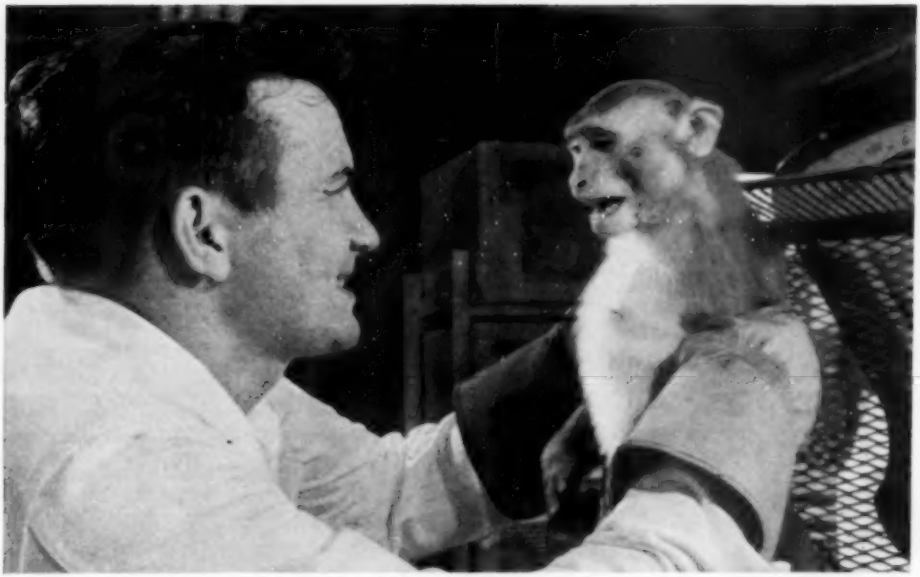
But the Cleveland meeting was not all work—we had fun and excitement too. Among the social functions was the women's annual luncheon, held on Wednesday in the Rainbow Room, and overflowing into the Ballroom, of the Carter Hotel. The student auxiliaries furnished the table favors which represented foreign countries, and a style show, "A Holiday Around the World," was presented by *Holiday Magazine* and the Higbee Company. Local committee chairmen were introduced and Marie Coombs, our president, spoke briefly.

In the evening, we joined our husbands for the alumni dinners, after which we convened to the Main Arena of the Public Auditorium for the President's Reception and Dance. The installation of AVMA and AVMA Auxiliary officers was appropriately programmed for this evening, and proved most colorful, with the Auxiliary officers wearing lovely pastel-colored evening dresses. Dr. and Mrs. Coombs, with the cooperation of the Governor of the State of Maine, presented the incoming and outgoing Auxiliary officers with gifts of seafoods from the Coombs' home state.

Numerous other events were arranged for our pleasure. Many attended the Big-League baseball game on Tuesday evening and were rewarded with a 5-4 score in favor of the Cleveland Indians over the Boston Red Sox. Others journeyed by bus to see the "Song of Norway" in the famous Musicarnival theater-in-the-round. Many tours were offered—to the museums, to several industries, and a two-hour boat ride up the Cuyahoga River afforded also a view of industrial Cleveland.

The Cleveland convention will be a bright memory for many families, and I am sure the majority of the over 3,500 present will continue to attend, as have Dr. Atkins and I have for the past 11 years. We'll see you next August in Philadelphia!

s/(Mrs. Hazen S.) Jeannette Atkins.



# Man see what monkey do!

## *(and vice versa)*

The rhesus monkey is a vital link in the production of the Salk polio vaccine. The instantaneous overwhelming demand for the vaccine, after its announced perfection, suddenly made these monkeys extremely precious.

Thousands upon thousands of the temperamental little primates were imported. One of the major problems in handling them was nutrition and sanitation. By good fortune, Purina researchers, who had just successfully perfected a new process, saw in this unique feed form a possible quick solution to the monkey nutrition problem . . . a problem already critical.

In a relatively short time, curious men and equally curious monkeys agreed that a brand-new product . . . Purina Monkey Chow . . . met all the qualifications which have been set up for all Purina Laboratory Research: "*Economical, adequate, convenient rations for all animals.*"

This philosophy of research and product development means that wherever Purina Chows are fed according to a Purina Program you have a standard nutritional base—*a constant*—which you can trust and rely upon.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**Lotion Veterinary.** **Florinef® (Squibb Fludrocortisone Acetate) combined with Spectrocin® (Squibb Neomycin-Gramicidin)**


**...topical corticosteroid-antibiotic therapy with 10 to 25 times the anti-inflammatory action of Hydrocortisone. Reduces inflammation, controls itching, suppresses eruptions ...combats secondary infection.**

**Pharmacology**

Florinef-S lotion combines the anti-inflammatory, anti-pruritic, action of Florinef with the anti-bacterial action of Spectrocin for treatment of many dermatologic disorders of small animals. *Florinef* inhibits inflammatory reactions to bacterial, allergenic and other chemical agents, reduces erythema, suppresses eruptions, and combats itching.

*Spectrocin* is effective against many gram-positive and gram-negative organisms responsible for most superficial infections of the skin, and combats secondary infection with both bacteriostatic and bactericidal action.

**Indications**

Dermatitis (eczematoid, contact), anogenital pruritis, inflammatory lesions with secondary infection, pustular folliculitis, infected cutaneous ulcers, superficial bacterial infections of the external ear and ear canal, secondarily infected minor burns or other wounds, infections following minor surgery, prophylactic treatment of scratches, abrasions and burns.

**Supply and Administration**

15cc. plastic squeeze bottles.
Apply lightly and sparingly two to four times a day. Florinef-S is non-irritating and releases medicant readily. On weeping surfaces it mixes with exudates to give better contact with affected area.

# *for everyday practice animal therapy*

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**Ointment Veterinary (Squibb Nystatin)**

**. . . topical antibiotic therapy for cutaneous fungal infections. Fast acting—well tolerated—superior ointment base.**

### Indications

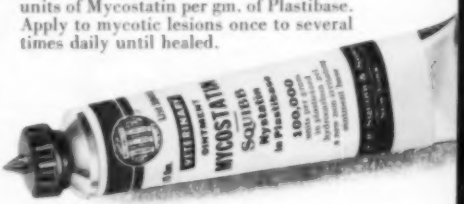
Mycostatin Ointment Veterinary has proved unusually effective for the rapid treatment of many superficial fungus diseases of animals, particularly when *Candida albicans* (Monilia) is the primary organism. Previously hard-to-treat dermatomycoses can be expected to respond promptly, and monilial lesions usually show improvement 48 to 72 hours after therapy has been initiated.

*Candida albicans* has not become resistant to Mycostatin in clinical trials, and no systemic or other adverse reactions have been observed. Squibb's superior Plastibase® insures rapid and thorough release of the antibiotic.

*To prevent monilial overgrowth which often results from therapy with broad spectrum antibiotics, broad spectrum therapy and antifungal prophylaxis can be administered simultaneously with MYSTECLIN.*

### Supply and Administration

15 gm. tubes, each containing 100,000 units of Mycostatin per gm. of Plastibase. Apply to mycotic lesions once to several times daily until healed.

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**. . . 11 essential vitamins and 9 vital minerals in *balance*.**


Vionate is a vitamin and mineral diet supplement especially formulated for dogs, cats and other small animals. Vionate helps provide an adequate daily intake of fat-soluble vitamins, B-complex vitamins and essential minerals in proper ratio and balance.

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For prevention and treatment of vitamin and mineral deficiency diseases . . . as a source of additional vitamins and minerals for pregnant or lactating dams . . . to help promote sound teeth and bones . . . maximum growth, health, vigor . . . healthy skin free from "itch" . . . improved muscular coordination . . . good digestion . . . glossy coat . . . for follow-up therapy after stress.

| VITAMINS | | MINERALS | |
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| Vitamin A | 37,000 U.S.P. units per lb. | Salt | 6.6% |
| Vitamin $D_3$ | 3,700 U.S.P. units per lb. | Calcium | 7.7% |
| Vitamin $B_{12}$ | 18 mg. per lb. | Phosphorus | 4.6% |
| Vitamin $B_2$ | 36 mg. per lb. | Iodine | .0018% |
| Vitamin $B_1$ | 4.5 mg. per lb. | Iron | .044% |
| Vitamin $B_{12}$ activity concentrate | 0.07 mg. per lb. | Cobalt | .00044% |
| Folic Acid | 1.8 mg. per lb. | Copper | .0044% |
| Niacin | 90 mg. per lb. | Magnesium | .066% |
| Pantothenic Acid | 45 mg. per lb. | Manganese | .148% |
| Vitamin E | 50 Int. units per lb. | | |
| Choline | 3,300 mg. per lb. | | |

### Supply and Administration

Vionate is available in 8-oz., 2-lb. and 10-lb. canisters. Vionate is added to food once each day, the amount to vary with size and weight of animal.

FLORINEF-S, MYCOSTATIN and VIONATE are available from your favorite veterinary supply house, or your nearest Squibb Branch. For further information on these or other Squibb veterinary products, write: SQUIBB, *Veterinary Department*, 745 Fifth Avenue, New York 22, N. Y.

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## Anti-Hog Cholera Serum
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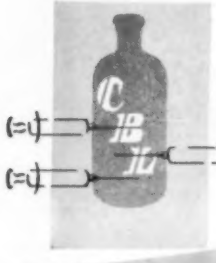
**Three generations of Veterinarians working with and for the Profession have made Corn Belt — "The Veterinarians' Institution."**



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# COMING MEETINGS

Pennsylvania State Veterinary Medical Association. Annual meeting. Hotel Brunswick, Lancaster, Oct. 16-18, 1957, Raymond C. Snyder, N. W. Corner Walnut St. and Copley Rd., Upper Darby, secretary.

Texas Veterinary Medical Association. Annual meeting. Baker Hotel, Dallas, Oct. 16-18, 1957. Paul B. Blunt, 712 Maverick Bldg., San Antonio, Texas, secretary.

Eastern Iowa Veterinary Association. Annual meeting. Hotel Sheraton-Montrose, Cedar Rapids, Oct. 17-18, 1957. F. E. Brutsman, Traer, Iowa, secretary.

Illinois, University of. Annual veterinary conference and short course. School of Veterinary Medicine, University of Illinois, Urbana, Oct. 17-18, 1957. L. E. Boley, chairman.

Southern Veterinary Medical Association. Annual meeting. Hotel Roanoke, Roanoke, Va., Oct. 27-30, 1957. A. A. Husman, P. O. Box 91, Raleigh, N. Car., secretary.

Cornell University. Nutrition conference. Cornell University, Ithaca, N.Y., Oct. 31-Nov. 1, 1957. J. K. Loosli, Stocking Hall, Cornell University, Ithaca, N.Y., chairman.

Interstate Veterinary Medical Association. Annual meeting. Martin Hotel, Sioux City, Iowa, Nov. 7-8, 1957. K. W. Smith, 1002 34th St., Sioux City, Iowa, secretary.

Animal Care Panel. Annual meeting. Bellevue Hotel, San Francisco, Calif., Nov. 7-9, 1957. R. J. Flynn, Box 299, Lemont, Ill.

Midwest Small Animal Association and the Regional A.A.H.A. Annual meeting. Hotel Burlington, Burlington, Iowa, Nov. 13-14, 1957. J. Porter Coble, 2828 S. MacArthur Blvd., Springfield, Ill., secretary.

United States Livestock Sanitary Association. Sixty-first annual meeting. Chase Park Plaza Hotel, St. Louis, Mo., Nov. 13-15, 1957. R. A. Hendershott, 33 Oak Lane, Trenton, N. J., secretary-treasurer.

Pennsylvania, University of. Fifty-eighth annual conference of veterinarians. Jan. 7-8, 1958, School of Veterinary Medicine, University of Pennsylvania, Philadelphia. Dr. James Mark, chairman.

Cornell University. Annual conference for veterinarians. New York State Veterinary College, Ithaca, Jan. 8-10, 1958. W. A. Hagan, dean.

Oklahoma Veterinary Medical Association. Annual meeting. Hotel Lawtonian, Lawton, Jan. 9-10, 1958. Mrs. Larma Bennett, 2805 S. W. 51 St., Oklahoma City, executive secretary.

Kansas Veterinary Medical Association. Annual convention. Hotel Broadview, Wichita, Jan. 12-14, 1958. K. Maynard Curts, 5236 Delmar Ave., Kansas City 3, Kan., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Hotel Andrew Jackson, Nashville, Jan. 12-14, 1958. H. W. Hayes, 5009 Clinton Pike, Nashville, secretary-treasurer.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Jan. 14-16, 1958. F. B. Young, Waukee, Iowa, secretary.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 16-17, 1958. L. M. Borst, 3315 Shelby, Indianapolis, secretary.

Intermountain Veterinary Medical Association. Annual meeting. Hotel Utah, Salt Lake City, Jan. 16-18, 1958. R. A. Bagley, 4680 Creek View Dr., Murray, Utah, secretary.

Minnesota Veterinary Medical Association. Annual meeting. St. Paul Hotel, St. Paul, Jan. 20-22, 1958. P. S. Pomeroy, School of Veterinary Medicine, University of Minnesota, St. Paul 1, Minn., secretary.

North Carolina State College. Conference for veterinarians. North Carolina State College, Raleigh, Jan. 28-31, 1958. C. D. Grinnells, chairman.

Oregon Veterinary Medical Association. Winter meeting. Portland, Jan. 31-Feb. 1, 1958. Edward L. Holden, P. O. Box 445, Oswego, secretary.

## Regularly Scheduled Meetings

ALABAMA—Central Alabama Veterinary Association, the first Thursday of each month. B. M. Lauderdale, Montgomery, secretary.

Jefferson County Veterinary Medical Association, the second Thursday of each month. S. A. Price, 213 N. 15th St., Birmingham, secretary.

Mobile-Baldwin Veterinary Medical Association, the third Tuesday of each month. W. David Gross, 771 Holcombe Ave., Mobile, Ala., secretary.

ARIZONA—Central Arizona Veterinary Medical Association, the second Tuesday of each month. Keith T. Maddy, Phoenix, Ariz., secretary.

Southern Arizona Veterinary Medical Association, the third Wednesday of each month at 7:30 p.m. E. T. Anderson, Rt. 2, Box 697, Tucson, Ariz., secretary.

CALIFORNIA—Alameda-Contra Costa Veterinary Medical Association, the fourth Wednesday of Jan., March, May, June, Aug., Oct., and Nov. Leo Goldson, 3793 Broadway, Oakland 11, Calif., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of February, April, July, September, and December at 3004 16th St., San Francisco, Calif. Mr. Herb Warren, executive secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. R. B. Barsaleau, 2333 E. Mineral King, Visalia, Calif., secretary.

Kern County Veterinary Medical Association, the first Thursday evening of each month. A. L. Irwin, 301 Taft Highway, Bakersfield, Calif., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. W. H. Rockey, P. O. Box 121, San Luis Obispo, Calif., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 90 Corral de Tierra, Salinas, Calif., secretary.

North San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month at the Hotel Covell, in Modesto, Calif. Lyle A. Baker, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. Chester A. Maeda, 766 E. Highland Ave., San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, the third Thursday of each month. Donald E. Lind, 2643 N. Main St., Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. R. C. Lawson, 4040 El Camino, Palo Alto, Calif., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. Robert E. Clark, Napa, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. W. E. Steinmetz, 4227 Freeport Blvd., Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. H. R. Rossoll, 1795 Moore St., San Diego, Calif., secretary.

San Fernando Valley Veterinary Medical Association, the second Friday of each month at the Casa Escobar Restaurant in Studio City. John Chudacoff, 7912 Sepulveda Blvd., Van Nuys, secretary.

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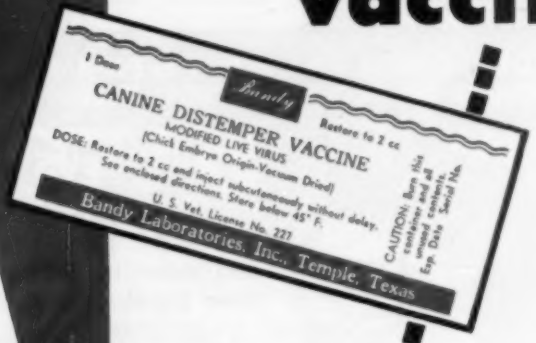


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Santa Clara Valley Veterinary Association, the fourth Tuesday of each month. Kay Beulley, N. Fourth and Gish Rd., San Jose, Calif., secretary.

Southern California Veterinary Medical Association, the last Wednesday of each month. Don Mahan, 1919 Wilshire Blvd., Los Angeles 57, Calif., executive secretary.

Tulare County Veterinarians, the second Thursday of each month. R. B. Barnaleau, 2333 E. Mineral King, Visalia, Calif., secretary.

COLORADO—Denver Area Veterinary Society the fourth Tuesday of every month. Richard C. Tolley, 5060 S. Broadway St., Englewood, Colo., secretary.

Northern Colorado Veterinary Medical Society, the first Monday of each month. M. A. Hammarlund, School of Veterinary Medicine, Colorado A. & M. College, Fort Collins, Colo., secretary.

DELAWARE—New Castle County Veterinary Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. E. J. Hathaway, Clifton Park Manor, Apt. 73-5, Wilmington 2, Del., secretary.

FLORIDA—Central Florida Veterinary Medical Association, the first Tuesday of each month, time and place specified monthly. Jack H. McElyea, 5925 Edgewater Drive, Orlando, Fla., secretary.

Florida West Coast Veterinary Medical Association, the second Wednesday of each month at the Lighthouse Inn, in St. Petersburg. R. L. Brutus, 336 E. 15th St., Hialeah, Fla., secretary.

Jacksonville Veterinary Medical Association, the first Thursday of every month. Dodsons Restaurant. P. S. Roy, 4443 Atlantic Blvd., Jacksonville, Fla., secretary.

Northwest Florida Veterinary Medical Society, third Wednesday of each month, time and place specified monthly. T. R. Geci, 108B Catherine Ave., Pensacola, Fla., secretary.

Palm Beach Veterinary Society, the last Thursday of each month in the county office building at 810 Datura St., West Palm Beach. J. J. McCarthy, 500-25th Street, West Palm Beach, Fla., secretary.

Ridge Veterinary Medical Association, the fourth Thursday of each month in Bartow, Fla. Paul J. Myers, Winter Haven, Fla., secretary.

South Florida Veterinary Society, the third Wednesday of each month. Time and place specified monthly. Frank Mueller, Jr., 4148 E. 8th Ave., Hialeah, Fla., secretary.

Suwannee Valley Veterinary Association, the fourth Tuesday of each month, Hotel Thomas, Gainesville. W. B. Martin, Jr., 3002 N. W. 6th St., Gainesville, Fla., secretary.

Volusia County Veterinary Medical Association, the fourth Thursday of each month. A. E. Hixon, 131 Mary St., Daytona Beach, Fla., secretary.

GEORGIA—Atlanta Veterinary Society, the second Tuesday of every month at the Elks Home on Peachtree St., Atlanta, Ga. J. L. Christopher, Smyrna, Ga., secretary.

ILLINOIS—Chicago Veterinary Medical Association, the second Tuesday of each month. Mark E. Davenport, Jr., 215 S. Edgewood Ave., LaGrange, Ill., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September, and December. A one-day clinic is held in May. H. S. Bryan, College of Veterinary Medicine, University of Illinois, Urbana, secretary.

INDIANA—Central Indiana Veterinary Medical Association, the second Wednesday of each month. Peter Johnson, Jr., 4410 N. Keystone Ave., Indianapolis 5, secretary.

Michiana Veterinary Medical Association, the second Thursday of every month except July and December, at the Hotel LaSalle, South Bend, Ind. J. M. Carter, 3421 S. Main St., Elkhart, Ind., secretary.

Tenth District Veterinary Medical Association, the third Thursday of each month. J. S. Baker, P. O. Box 52, Pendleton, Ind., secretary.

IOWA—Cedar Valley Veterinary Association, the second Monday of each month, except January, July, August, and October, at Black's Tea Room, Waterloo, Iowa. H. V. Henderson, Reinbeck, Iowa, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. D. I. Lee, Sac City, Iowa, secretary.

East Central Iowa Veterinary Medical Society, the second Tuesday of every month. Dr. W. T. Rugger, Oxford, secretary.

Fayette County Veterinary Association, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Northeast Iowa-Southern Minnesota Veterinary Association, the first Tuesday of February, May, August, and November at the Winneslick Hotel, Decorah, Iowa, 6:30 p.m. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

KANSAS—Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Tuesday of each month. Robert E. Guilfoil, 18 N. 2nd St., Kansas City 18, Kansas, secretary.

KENTUCKY—Central Kentucky Veterinary Medical Association, the first Wednesday of each month. L. S. Shirrell, Versailles Rd., Frankfort, secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month in Louisville or within a radius of 50 miles. W. E. Bewley, P.O. Box "H," Crestwood, secretary.

MARYLAND—Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m. at the Park Plaza Hotel, Charles and Madison St., Baltimore. Md. Harry L. Schultz, Jr., 9011 Harford Rd., Baltimore, Md., secretary.

MICHIGAN—Mid-State Veterinary Medical Association, the fourth Thursday of each month with the exception of November and December. Robert E. Kader, 5034 Armstrong Rd., Lansing 17, Mich., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. S. Correll, Rt. 1, Midland, Mich., secretary.

Southeastern Veterinary Medical Association, the fourth Wednesday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Rd., Detroit 5, Mich., secretary.

MISSOURI—Greater St. Louis Veterinary Medical Association, the first Friday of each month (except July and August), at the Coronado Hotel, Lindell Blvd. and Spring Ave., St. Louis, Mo., at 8 p.m. Chester R. Pliegge, 4249 Peck St., St. Louis 7, Mo., secretary.

Kansas City Veterinary Medical Association and Kansas City Small Animal Hospital Association, the third Tuesday of each month. Robert E. Guilfoil, 18 N. 2nd St., Kansas City 18, Kansas, secretary.

NEW JERSEY—Central New Jersey Veterinary Medical Association, the second Thursday of November, January, March, and May at Old Hights Inn, Highstown, N. J. David C. Tudor, Cranbury, N. J., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from October through April at the Academy of Medicine, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Milburn Ave., Maplewood, N. J., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday of each month at the Casa Mana in Teaneck. James R. Tanzola, Upper Saddle River, secretary.

Northwest Jersey Veterinary Society, the third Wednes-

day of every odd month. G. R. Muller, 43 Church St., Lambertville, N. J., secretary.

Southern New Jersey Veterinary Medical Association, the third Tuesday of each month at the Collingswood Veterinary Hospital, Collingswood. W. E. Snyder, E. Kings Highway and Munn Ave., Haddonfield, secretary.

NEW YORK—New York City, Inc., Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

New York State Veterinary College. Annual conference for veterinarians. Cornell University, Ithaca. W. A. Hagan, New York State Veterinary College, Cornell University, Ithaca, N. Y., dean.

Monroe County Veterinary Medical Association, the first Thursday of even-numbered months except August. Irwin Bircher, 50 University Ave., Rochester, N. Y., secretary.

NORTH CAROLINA—Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel, Greensboro. Joseph A. Lombardo, 411 Woodlawn Ave., Greensboro, secretary.

Eastern North Carolina Veterinary Medical Association, the first Friday of each month, time and place specified monthly. Byron H. Brow, Box 453, Goldsboro, N. Car., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month. John G. Martin, Boone, N. Car., secretary.

Twin Carolinas Veterinary Medical Association, the third Thursday of each month in the Orange Bowl Restaurant, Rockingham, N. Car., at 7:30 p.m. James R. Burgess. Rockingham, N. Car., secretary.

OHIO—Cuyahoga County Veterinary Medical Association, the first Wednesday of each month, September through May (except January), at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Ed. R. Jacobs, 5522 Pearl Rd., Cleveland, Ohio, secretary.

Stark County Veterinary Association, the second Monday of each month. M. L. Willen, 4423 Tuscarawas St., Canton, Ohio, secretary.

OKLAHOMA—Oklahoma County Veterinary Medical Association, the second Wednesday of every month, 7:30 p.m., Patrick's Foods Cafe, 1016 N.W. 23rd St., Oklahoma City. Forrest H. Stockton, 2716 S.W. 29th St., Oklahoma City, Okla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month in Directors' Parlor of the Brookside State Bank, Tulsa, Okla. Don L. Hohmann, 548 S. Madison St., Tulsa, Okla., secretary.

OREGON—Willamette Veterinarian Medical Association, the third Tuesday of each month, except July and August, at the Marion Hotel, Salem. Dr. Marvin Corff, McMinnville, secretary.

PENNSYLVANIA—Del-High Veterinary Medical Association, the first Thursday of each month. Stewart Rockwell, 10th and Chestnut Sts., Emmaus, Pa., secretary.

Keystone Veterinary Medical Association, the fourth Wednesday of each month at the University of Pennsylvania School of Veterinary Medicine, 39th and Woodland Ave., Philadelphia 4, Pa. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

SOUTH CAROLINA—Piedmont Veterinary Medical Association, the third Wednesday of each month at the Fairforest Hotel, Union, S. Car. Worth Lanier, York, S. Car., secretary.

TEXAS—Coastal Bend Veterinary Association, the second Wednesday of each month. J. Marvin Prewitt, 4141 Lexington Blvd., Corpus Christi, Texas, secretary.

VIRGINIA—Central Virginia Veterinarians' Association, the third Thursday of each month at the William Byrd Hotel

# "Hey Pop, here comes Doc!"

How many times, over the years, has that call been the signal that the emergency will soon be under control?

The sense of relief occasioned by the timely arrival of "Doc" is the most sincere tribute to his knowledge, skill and experience.

Relief because of his prevention of serious economic loss? Of course — for his ministrations to the nation's farm animals add to the wealth of our farmers, protect our food supply.

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in Richmond at 8:00 p.m. M. R. Levy, 312 W. Cary Ct., Richmond 20, Va., secretary.

Northern Virginia Veterinary Conference, the second Tuesday of each month. Francis E. Mullen, 1130 S. Main St., Harrisonburg, Va., secretary-treasurer.

Northern Virginia Veterinary Society, the second Wednesday of every third month. Meeting place announced by letter. H. C. Newman, Box 145, Merrifield, secretary.

Southwest Virginia Veterinary Medical Association, the first Thursday of each month. I. D. Wilson, Blacksburg, secretary.

WASHINGTON—Seattle Veterinary Medical Association, the third Monday of each month, Magnolia American Legion Hall, 2870 32nd W., Seattle, Wash. William S. Green, 9637 S. E. 36th, Mercer Island, Wash., secretary.

South Puget Sound Veterinary Association, the second Thursday of each month except July and August, O. I. Bailey, P. O. Box 906, Olympia, Wash., secretary.

WEST VIRGINIA—Kyowva (Ky., Ohio, W. Va.) Veterinary Medical Association, the second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Harry J. Fallon, 200 5th St., W. Huntington, W. Va., secretary.

WISCONSIN—Central Wisconsin Veterinary Medical Association, the second Tuesday of each quarter (March, June, Sept., Dec.). R. J. O'Hern, P.O. Box 617, Cumberland, Wis., secretary.

Dane County Veterinary Medical Association, the second Thursday of each month. Dr. E. P. Pope, 409 Farley Ave., Madison, Wis., secretary.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. Dr. R. H. Steinkraus, 7701 N. 59th St., Milwaukee, Wis., secretary.

Northeastern Wisconsin Veterinary Medical Association, the third Wednesday in April, William Madson, 218 E. Washington St., Appleton, Wis., secretary.

Rock Valley Veterinary Medical Association, the first Wednesday of each month. W. E. Lyle, P. O. Box 107, Deerfield, Wis., secretary.

Southeastern Veterinary Medical Association, the third Thursday of each month. John R. Curtis, 419 Cook St., Portage, Wis., secretary.

Wisconsin Valley Veterinary Medical Association, the second Tuesday of every other month. E. S. Scobell, Rt. 2, Wausau, Wis., secretary.

## Dr. José Santivanez Joins Norwich Pharmacal Company

In expanding its veterinary sales organization in Latin America, the Norwich Pharmacal Co. has added to its staff Dr. José Santivanez (COR '44) who will have charge of the Latin American division, with headquarters in Mexico City.

While dean of the College of Veterinary Medicine, San Marcos, Peru, Dr. Santivanez was also consultant to the government's agriculture and public health departments. The Rockefeller Foundation granted him a fellowship in 1951 to study veterinary education in the United States as compared to that in Latin America. At this time, he organized the first Pan American Veterinary Congress which meets every four years. In 1954, he received an M.A. in public health from Columbia University.

The new Norwich executive is editor of *Ciencias Veterinarias*, a bimonthly publication. He has been honored with degrees from the University of Chile and the Mexican Society of Zootechnics.

# *enhanced action* through synergistic effectiveness against gram-negative, gram-positive & mixed infections

The synergistic, antimicrobial action of simultaneous therapy with penicillin and dihydrostreptomycin (such as with Combiotic) is greater than the additive effects of the individual drugs.

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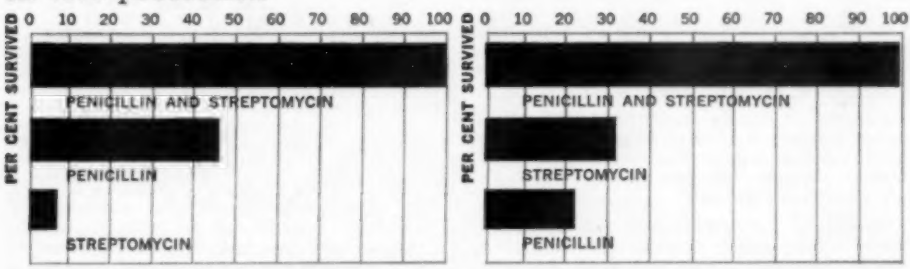
PENICILLIN AND DIHYDROSTREPTOMYCIN

in vivo protection*

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*Available as:* **COMBIOTIC P-S (DRY)** Single-dose vials Five-dose vials
each dose contains: 100,000 units penicillin G potassium, 300,000 units penicillin G procaine, and 1.0 Gm. dihydrostreptomycin.

**COMBIOTIC AQUEOUS SUSPENSION** Five-dose vials (10 cc.) Fifty-dose vials (100 cc.)
each dose contains: 400,000 units penicillin G procaine, and 0.5 Gm. dihydrostreptomycin.

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***For JOURNAL dated 15th of month — 22nd of month preceding date of issue.***

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### Wanted—Veterinarians

Assistant wanted for busy small animal practice in the South; some large animals. Modern, well-equipped hospital. Salary commensurate with qualifications, with possible percentage arrangement. Address "Box M 26," c/o JOURNAL of the AVMA.

Veterinarian, with New York license, wanted as assistant for modern small animal hospital on Long Island, near New York City. Excellent opportunity. Address "Box R 9," c/o JOURNAL of the AVMA.

Veterinarian wanted for general practice in Maryland. 75% dairy practice with large and small animal hospital facilities. Salary or commission. Could lead to partnership. State experience, references, salary expected. Dr. F. D. Custer, Oakland, Md.

Assistant veterinarian wanted for Maryland small animal hospital; excellent working conditions. Must be interested in long term employment; state qualifications and salary expected. Address "Box P 27," c/o JOURNAL of the AVMA.

Veterinarian wanted to assist in small animal practice in Midwestern city. Single man preferred. Living quarters furnished. Address "Box P 36," c/o JOURNAL of the AVMA.



Municipal zoo director wanted—Duties to include management, educational promotion, and research in cooperation with Zoological Society. Minimum three years' experience in a position of responsibility related to carnivora and herbivora. Graduate in zoology or related subject preferred. State starting salary required. For full particulars contact Winnipeg Board of Parks and Recreation, 160 Princess St., Winnipeg 2, Manitoba, Canada.

Assistant veterinarian wanted for small animal hospital; San Francisco Bay area. Guaranteed salary plus percentage of net. Living quarters available. Address "Box R 26," c/o JOURNAL of the AVMA.

Assistant veterinarian wanted for small animal practice in Chicago area. $5,200 per year plus percentage. Must be qualified to pass State Board. Address "Box R 27," c/o JOURNAL of the AVMA.

Assistant veterinarian needed for mixed practice in northern Illinois. Has future possibilities. Address "Box R 37," c/o JOURNAL of the AVMA.

Louisiana—Two area veterinarians needed by Louisiana Livestock Sanitary Board. Starting salary $500 month. $525 end six months, annual $25 monthly raises thereafter, until maximum of $625 reached. State civil service, retirement, and insurance benefits. To qualify must have two years practice or one year regulatory. Two federal area veterinarian jobs also available. F. B. Wheeler, State Veterinarian, State Capitol Bldg., Baton Rouge, Louisiana.

### Wanted—Positions

Relief veterinarian, experienced and competent, will operate your practice while you are on vacation. Available for New York City and suburbs. Licensed in New York and Conn. Address "Box R 15," c/o JOURNAL of the AVMA.

Dr. Bernard LaSalle has ended his association with Arnold Laboratories and desires to relocate. Please address all mail to: 1111 Crescent Dr., New Castle, Ind.

Small animal practitioner, age 35, married, Connecticut license, 13 years excellent experience, desires position as associate or partner in a Connecticut animal hospital. Address "Box R 25," c/o JOURNAL of the AVMA.

Experienced small animal man, completely reliable and with best of references, desires relief position or short term position in Southern California. Address "Box R 29," c/o JOURNAL of the AVMA.

1950 graduate, six years experience in general practice, desires position in any field of veterinary medicine, leading to security for family of four. Leaving research in U.S. Public Health Service. Address "Box R 32," c/o JOURNAL of the AVMA.

Graduate veterinarian interested in position with commercial company pertaining to and with product development, sales management, and promotion. Diversified experiences and many contacts. Interview on request. Address "Box R 35," c/o JOURNAL of the AVMA.

Woman veterinarian, 1955 graduate, desires position in small animal practice in the East; licensed in New York and Ohio. Address "Box R 40," c/o JOURNAL of the AVMA.

### Wanted—Practices

1955 ISC graduate desires general practice or position leading to partnership. Prefer Middlewest. Leaving service last of December. Will consider all reasonable offers. Replies confidential. Address "Box R 35," c/o JOURNAL of the AVMA.

Wanted to lease in Colorado, modern small animal hospital. Address "Box R 30," c/o JOURNAL of the AVMA.

Experienced practitioner, age 30, married, wants to buy or lease active small animal hospital in community of 50,000 or more population. Consider any good location. Address "Box R 39," c/o JOURNAL of the AVMA.

### For Sale or Lease—Practices

Practice in western Pennsylvania for sale. Frame house, block office on same property. Excellent practice; 50% large animal and 50% small animal. Address "Box R 34," c/o JOURNAL of the AVMA.

Small animal hospital for sale in Michigan. Available by Nov. 1. Owner wishes to retire. Address "Box R 31," c/o JOURNAL of the AVMA.

## AVMA Research Fellowships Available

**The Research Council of the AVMA announces the availability of a number of fellowships for postgraduate training for the academic year, 1958-1959.**

**The recipient of a fellowship must be a veterinarian and a citizen of the United States or Canada. Veterinary students who expect to graduate at the end of the current school year and who wish to follow a career in research may apply for a fellowship.**

**The latest date for filing the completed application is Feb. 15, 1958. Approximately one month is required for processing completed applications after receipt by the secretary of the Council. Qualified persons should secure and submit applications as early as possible to insure their file being complete for presentation to the Committee on Fellowships.**

**The Committee on Fellowships of the Research Council will meet in March to consider applications, and the awards will be announced soon afterward. The stipend will be determined in each case by the needs of the individual, the location of the school in which he proposes to work, and other factors. In general, the stipends range from $100 monthly and upward.**

**Any qualified person interested in graduate training may obtain application blanks and other information by writing to Dr. C. H. Cunningham, secretary, AVMA Research Council, Department of Microbiology and Public Health, College of Veterinary Medicine, Michigan State University, East Lansing, Mich.**

Equipped small animal hospital, with spacious living quarters above, for sale or lease. Located in growing middlewest industrial town. Established 32 years. Owner retiring. Address "Box R 36," c/o JOURNAL of the AVMA.

Mixed practice for sale in one of Oklahoma's leading cities. Outstanding large animal practice plus small animal hospital, completely furnished. Address "Box R 38," c/o JOURNAL of the AVMA.

**To insure prompt delivery, replies should be carefully addressed: Complete box number as given in the ad, AVMA, 600 S. Michigan Blvd., Chicago 5, Ill.**

### Miscellaneous

For sale—3½ year old Motorola base and mobile communication equipment in very good condition. Price: $995, FOB Wisconsin. Address "Box R 28," c/o JOURNAL of the AVMA.

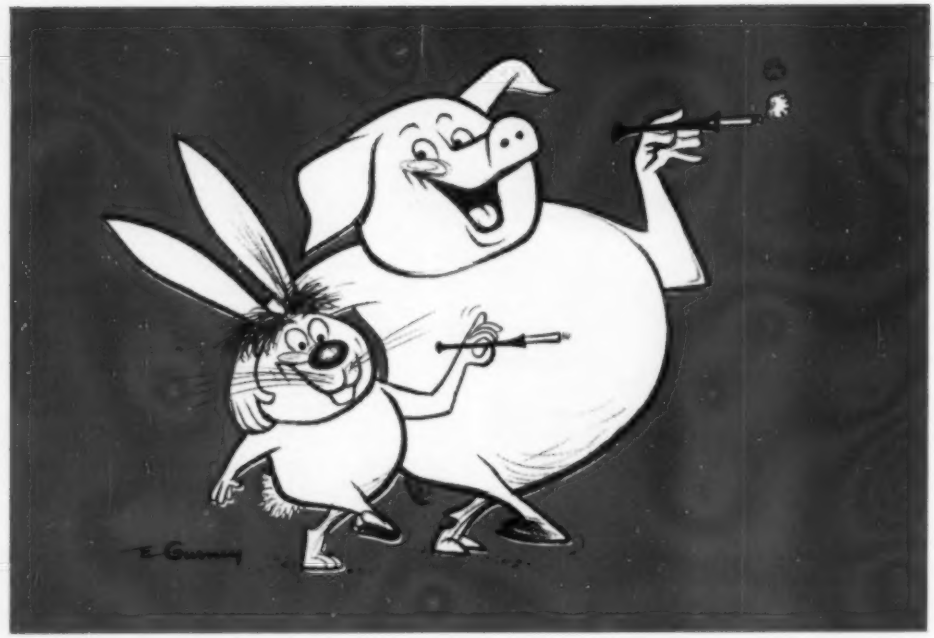
Give us an offer on one large animal operating table, manual operation. Highest offer F.O.B. may take it. Dr. M. X. Parent, Foley, Minn.

Pregnancy diagnosis in mares—45th to 150th day. Request mailing tubes; $7.00, 2 or more, $6.00 each. Pregnancy Diagnostic Laboratories, Dysart, Iowa.

### Too Late to Classify

Veterinarian wanted to operate a newly constructed small animal hospital in Middlewest town of 90,000. Salary leading to profit-sharing basis. Address "Box R 41," c/o JOURNAL of the AVMA.

*Hauptner Instrument Plant Centennial.*—On March 26, 1857, Hans Otto Frederick Hauptner, recognizing that veterinary medicine was a thriving, independent profession, founded the H. Hauptner Instrument Plant in Berlin, Germany. This plant has since been unique for its production of special tools and instruments for veterinary science and animal husbandry.—*Monatsh. f. Vet.-med. (March 15, 1957): 133.*



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New ROVINE Hog Cholera Vaccine is a modified live virus produced by the adaption of hog cholera virus to rabbits.

This was followed by many serial passages in rabbits, bringing the virus to a degree of modification where it is no longer pathogenic but retains its ability to provide solid dependable immunity against hog cholera.

It is intended for use with anti-hog cholera serum. Administration is 2 cc. of ROVINE and 10 to 15 cc. of serum.

Sold only to veterinarians. For details please write VETERINARY PROFESSIONAL SERVICE DEPARTMENT, AMERICAN CYANAMID COMPANY, NEW YORK 20, N. Y.

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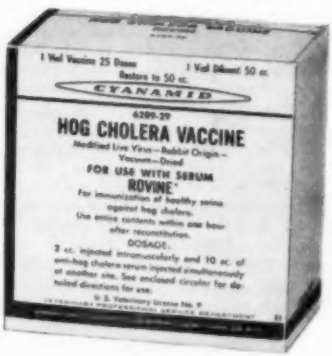


CYANAMID

## Index to Advertisers in This Issue



## Dr. Roberts Named Veterinary Director, Norwich Pharmacal Company

Harold D. B. Roberts, V.M.D., has been named director of the newly created division of veterinary medicine of The Norwich Pharmacal Co., Norwich, N. Y., according to an announcement by William D. Stillman, Ph.D., administrative research coordinator. Veterinary activities are now under the scientific department rather than the medical division as formerly.

Dr. Roberts, who has been with Norwich's Eaton Laboratories division since 1952, is a native of Pennsylvania and was educated at the West Chester State Teachers College and the School of Veterinary Medicine, University of Pennsylvania. After receiving his V.M.D. degree in 1948, he practiced for four years at Newark, Del.

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The average age of farmers is on the increase. In 1910, it was 41.9 years, now it is 49.3 years.—*Feed Bag (July, 1957): 101.*

---

# HER ENGINE FALTERED

A few minutes out of Dover, fog wrapped the flimsy Bleriot monoplane like a shroud.

The pretty young woman in the smart flying costume (she'd designed it herself—"bloomers, blouse, and hood of mauve satin") glanced at her compass. It was the first time she'd ever used one. She thought of instructor Hamel's parting words:

"Be sure to keep on course, Miss Quimby, for if you get five miles out of the way, you'll be over the North Sea, and you know what that means."

She climbed to 6,000 feet. Freezing cold and still fog.

She pointed her nose down. The comforting clatter of the Gnome engine changed to a coughing splutter. It was conking out! She leveled off, figuring how she'd ditch. To her relief, the engine suddenly took hold. Harriet re-checked her compass.

Some time later, breaking into clear sky, she saw a stretch of beach below. She put down at Hardelot; and on April 16, 1912, Harriet Quimby, first American woman to earn a pilot's license, became the first woman in the world to fly the English Channel.

As charming as she was brave, Harriet Quimby combined the thorough femininity and the self-confident ability which make American women like no others on earth. And help make this country so strong in character that investing in America is the wisest thing any American can do!

Today more than 40,000,000 of us have more than $41,000,000,000 securely invested in our country—through U. S. Savings Bonds. Bonds in which *America* guarantees the safety of our savings and the return we receive. There's no greater security! Buy Bonds regularly—where you bank or through the Payroll Savings Plan where you work.

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electrolyte depletion and dehydration
often retard or actually prevent recovery

# MODERN PRACTICE DICTATES FLUID THERAPY FOR ROUTINELY BETTER CLINICAL RESULTS


Successful use of Normal Electrolytes with Dextrose 5% (Jen-Sal) in thousands of cases has proven its superiority as supplemental therapy for a wide range of stress conditions. Its unique formula, based on normal blood serum constituents, provides rapid and convenient restoration of normal body cell chemistry in critical cases of diarrhea, hemorrhage, shock, nutritional and infectious diseases. Normal Electrolytes is supplied by all Jen-Sal Branches and representatives in cartons of six - 1000 cc. vials. Keep a supply immediately available for emergency or routine use where consistently dependable fluid therapy is essential.

**NEW PROFESSIONAL VIAL,** especially designed by Jen-Sal for veterinarians, features attached sling and easy-to-read, molded graduations. Neck accommodates standard intravenous outfits.

## NORMAL ELECTROLYTES WITH DEXTROSE 5%

**Jensen-Salsbery Laboratories, Inc., Kansas City, Missouri**